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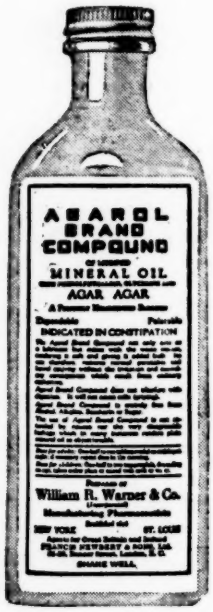

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Remarks ON FRACTURES OF THE FIRST CERVICAL VERTEBRA.*

BY

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In a previous paper I described at some length the pathological anatomy, mechanism, and symptomatology of fractures of the atlas vertebrae. Having now three more recent examples of this injury to add to the four published then, I may take this opportunity of bringing the history of the subject up to date, and of making such amplifications or amendments as further experience seems to demand. The whole question of atlas fracture is, in reality, indissolubly bound up with the matter of injuries to the occipito-atlanto-axial component of the vertebral column, both bones and ligaments. I shall be compelled by the necessary limits of space to confine my observations strictly to the atlas, and will have to reserve for another occasion the many fields through which a fascinating subject might well tempt us to wander. So much that is dramatic but untrue, so much that is interesting yet founded on legend, obscures the facts in this corner of surgery that it is impossible to take up the thread of the narrative in modern times. A complete survey of the history of the various lesions is required before we can go forward along a sure path. As regards atlantal injury I have previously sketched in the necessary background, but will once more outline the chief features after describing the new cases.

MATERIAL.

In 1920 I described four examples of atlas fracture—two clinical examples and two museum specimens—and collected forty-two other cases from the literature. I have omitted cases of gunshot injury in the present communication. The total material, personal and otherwise, now amounts to sixty-five cases. I am indebted to Dr. Arnison and Dr. Forbes for two of them (see Tables I and II).

CASE I.—*Fracture of the Posterior Arch of the Atlas.*

A man, aged 57, was sent to see me in 1920, some five months after an accident which had left his neck very painful and stiff. He was unable to describe the exact facts, but was drawing water in a slightly stooping position when a telegraph pole, blown over by the wind, struck him on the back of the head. The scalp was not cut, there was no bleeding from the nose, mouth, or ears. He was stunned for a short time and when he became conscious he had great pain in the neck, in the shoulders, and in the arms as far as the elbows. He had been in bed for eight weeks. His arms, he said, were still weak so that he could not raise them high above his head or get his hands easily into his trouser pockets. He had had no difficulty in walking. The outstanding feature of the case had been the pain in the occipital region of the scalp, and although this was improving, it was still very troublesome—so much so, indeed, that he was in the habit of placing a wet handkerchief on his head to chill the burning pain. On examination I found that the head was very stiffly held and that movements of rotation and of nodding were practically abolished. There was an area of scalp analgesia on both sides in the distribution of the great occipital nerves, greater in extent on the right than on the left. He could abduct the arms fairly well, but the right deltoid, biceps, and triceps were flabby without being definitely palsied. There was a small patch of anaesthesia corresponding to the skin areas of root C.5 on both arms. There was no sign of interruption of the pyramidal pathway to the legs on either side. A radiogram disclosed fracture of the posterior arch of the atlas. Seen again a month later he was making slow progress, but the occipital neuralgia was still severe.

FIG. 1.—Case I. Fracture of the posterior arch of the atlas in two places.

In this case the atlas fracture appears to have been complicated by a slight cord haemorrhage at the level of C.5, but it must have been extremely minute. Alternatively a peripheral injury to the issuing roots of this segment may have been occasioned in some manner.

CASE II.—*Fracture of the Posterior Arch of the Atlas and Odontoid Process.*

A woman, 67 years of age, was admitted to the Salford Royal Hospital on February 22nd, 1925, with the history that the previous day she had fallen downstairs in her home, and, as she thought, twisted her neck, which was very painful. It was almost impossible for her to find any comfort in any position in bed. There was no sign of any paralysis in arms or legs. I found on questioning her that the stairs in her house were very steep, and ran across the house, so that the dividing wall was only a few feet from the foot of the stairs. In falling she had struck the top of her head against the wall across the passage. There was a small cut one inch inside the hairy scalp about the site of the coronal suture, near the mid-line, so that the force striking the top of the head might also have extended it. Flexion and extension of the head were impossible, and the power of rotation was abolished. An *x*-ray photograph revealed a bilateral fracture of the posterior arch of the atlas, fracture of the odontoid process, and posterior displacement of the occipito-odonto-atlantal component. The luxation was reduced as far as possible, and the head, neck, and shoulders immobilized in plaster-of-Paris. She resented this control, and after six weeks in hospital was discharged to out-patients. After another month she begged to have the cast removed. This was done and she was promptly lost sight of. I have recently re-examined this patient. Movements of the neck are a little restricted in most directions, but she declares herself to be perfectly well. A radiogram shows the atlas soundly healed in perfect form.

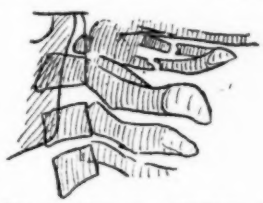

FIG. 2.—Case II. Fracture of the posterior arch of the atlas in two places. Fracture of the odontoid process. Posterior luxation of occipito-odonto-atlantal component.

CASE III.—*Fracture of the Posterior Arch of the Atlas.*

A man, 34 years of age, was admitted to the Salford Royal Hospital on October 20th, 1925, under the care of my colleague Mr. Ollerenshaw, who, knowing my interest in these cases, later kindly transferred the case to me. It appeared that a bag of starch weighing 160 lb. had slipped from a hoist at a dock warehouse and had fallen from a height of five stories on to the upper and back part of the patient's head, knocking him down and temporarily stunning him. He had the usual severe pain in the neck with neuralgic pain streaming up on to the back part of the scalp. There were no signs of cord or root injury. The neck seemed rather swollen and was extremely tender to touch behind. *X* rays revealed a fracture of the posterior arch of the atlas on the left side, with a negligible fracture of the spinous process of C.3. The odontoid process was intact; there was no luxation of the head. The neck was immobilized between sandbags, and after five weeks in hospital he was discharged with a leather collar. I have seen him from time to time during the past year and he has done well. His neck is still a little stiff, but this is probably partly due to apprehension, as he knows he has had a "broken neck." He has complained of tingling along the inner sides of the arms into the inner two fingers on both sides, as if he had "knocked his funny-bones," whilst he gets a similar tingling in his calves, especially when he turns his head far to the right or left. There is an area of hypo-aesthesia to needle-prick over a part of the scalp area supplied by the great occipital nerve. In a skiagram taken in May, 1927, the atlas still shows a deficiency of the left arch; but there was unusual separation of the fragments in this case.

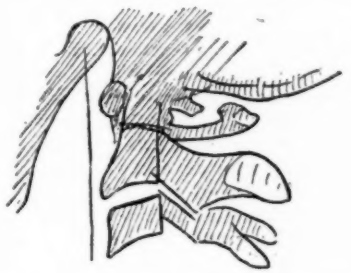

FIG. 3.—Fracture of the posterior arch of the atlas on one side. Case III.

SOME GENERAL CONSIDERATIONS.

If we turn to the standard works we shall strengthen the impression, which was probably implanted in our dissecting-room days, that injuries of the first cervical vertebra are, on the one hand, exceedingly rare, and, on the other, extremely fatal. Both of these ideas are wrong, although a degree of rarity cannot be denied to a condition of which only sixty or seventy cases appear to exist in the world's literature. These figures are probably misleading, for it is strange that I should have seen so relatively high a percentage myself. The fact is that a number of cases go undiagnosed, not because there is any essential difficulty in discovering the true nature of the case, but because the belief in the fatal nature of the condition is so strong that the practitioner does not suspect such a lesion if his patient lives. The stiff and painful neck of atlantal injury is put down to "sprained neck," and it is only when

*Founded on a portion of a Hunterian Lecture delivered at the Royal College of Surgeons of England, February, 1924.

the condition fails to resolve itself—and some cases get well fairly quickly—that the more wary send their patients for *x*-ray examination.

It is easy to understand how this belief in the almost uniform fatality of atlantal injury has come about. There are in currency apocryphal tales of slight accident and of pranks leading to sudden death. Many such cases have undoubtedly occurred. The reader may turn to Greene Gascoigne's case, for example, but he will find that, as a rule, in these cases the violence has been considerable, more considerable perhaps than the participators would willingly admit. The classical example of minimal violence leading to death is that of the child lifted up by the head and set down dead. As this refers to rupture of ligaments, and not to atlas injury, I shall not at present make a detailed reference to this case, of which many variations in folklore exist. The origin of this story goes back to France 150 years ago, and is not founded, so far as I can learn, on definite pathological observation. Much more convincing, however, than any fanciful tales were the older, well documented records of atlantal, odontoid, and axial fracture, which are chiefly concerned with fatalities. How else could the clinician of last century and earlier times confirm a diagnosis of fracture of the upper cervical vertebra except by necropsy? If there was cord damage, and often there is none, he was on surer ground, but even then there was no certainty as to the precise nature or even the exact site of the bony injury. Thus we find the earlier history of atlas fracture in essence a record of death, up to the introduction of radiography, since when a change has come over the picture. I find that of thirty-two cases reported since 1900, only six have died, so that one's impression at present is that atlas fracture, though fraught with the possibility of danger, is by no means always fatal. Indeed, when the posterior arch alone is broken—and this is the commonest type—there should be no particular anxiety. The real danger lies in the nature of the force which is required to bring about the lesion, for this may not stop at fracture of the atlas, but may go on to cause other injuries. In order that I may make this clearer it will be necessary to speak of the mechanism of fracture, when we shall see that an injury of much the same type may produce now a fracture of the skull, now a fracture of the atlas, whilst a slight difference in the direction of the trauma causes the injury to fall into the cervical spine at a lower level. For the vast majority of cervical injuries are produced by forces applied to the head and not directly to the neck. This is a fundamental point, and it is essential that the fact should be realized in all its implications.

SITE OF INJURY WHEN FORCE IS APPLIED TO THE HEAD.

If the wounding body is a hard unresilient material a fracture of the skull is naturally the most probable result, the skull being compressed between the spine at the occipital condyles and the injuring agent. Even so, a fracture of the spine may occur as well, and I suspect that these double injuries are more frequent than we think. I have seen one such only. Clinically the head injury quite overshadows all else, whilst at necropsy the pathologist is satisfied when he finds cranial lesions. In the monograph on fractures of the skull by Braquehaye and Laubie (Experience XIV) experiments are recorded in which the posterior arch of the atlas, as well as the skull, was broken by longitudinal compression of the head on the spine. If the injuring body is more elastic and yet heavy (as when a bale of cotton or sugar or starch falls on to the head, or as when a person falls from a height on to sand) the skull will escape and then the lesion may fall into the vertebral column at some point. Where? If the neck is violently flexed the injury will probably be found in the lower cervical vertebrae, at the point where the change in the mobility of the spine takes place (C.5 or thereabouts). If, on the other hand, the head is erect and the force is transmitted along the spine vertically an injury to the relatively weak atlas may result, and this for a special but simple reason. I have described in my previous paper the widening of the atlas ring which occurs by the resolution of the forces acting upon it, but a few words of recapitulation are needed. The lateral masses of the atlas are triangular in coronal section with the wide bases outwards. The upper and lower articular facets look inwards and upwards, inwards and downwards, respectively. When the head is pressed down on to the vertebral column the atlas is squeezed between the occipital condyles above and the axis below, and, owing to the obliquity of its articular surfaces, the wedge-like lateral masses tend to slide outwards. (I have illustrated this diagrammatically elsewhere.) This tendency is resisted by the anterior and posterior arches which bind the lateral masses together, and also by the transverse ligament, which not only holds the odontoid in place, but acts as well as an internal brace for the lateral atlantal masses. This ligament is, contrary to general belief, exceedingly strong, and its rupture is one of the rarest of all accidents in healthy people. If the limits of bony cohesion are passed a tension fracture occurs, the atlas ring gives way.

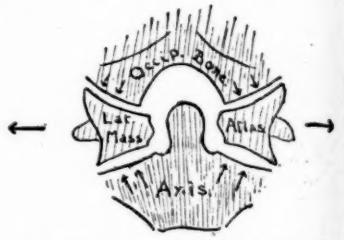

FIG. 4.—Diagram made from a normal skiagram. To illustrate the theory of "atlantal squeeze."

It is usually the posterior arch, where it is weakened by the grooves for the vertebral arteries, that breaks. It is because the force is centrifugal, from the centre outwards, that paralysis is rare in simple atlas fracture; the fragments move in the safe direction, away from the cord. The force which has driven the head and the atlas down on to the axis may stop there, but should it go on further injuries may arise, especially if violent flexion is added. If the neck remains rigidly erect, with articulations locked, and the head alone be violently flexed, the odontoid process will probably be pulled off by the check ligaments (an "abrissfraktur"). Alternatively, should the head and neck be flexed forwards as a whole the additional injury will fall on the spine in the lower cervical region. Examples of both of these happenings will be found in the literature (see Table II). Now what of direct injury? Can the atlas be broken by direct violence?

Direct Injury.

Direct injury applied to the back of the neck may on rare occasions break the atlas. The bone is so deeply situated, and lies guarded by the overhang of the occiput above and by the strong and longer spine of the axis below, that it needs a very accurately localized blow with a narrow heavy implement to miss these and strike exactly over the atlas. Fracture has been caused by this means, but not in any cases I have myself seen. In Hugues's case a woman was struck on the back of the neck with a stick and instantly killed. At necropsy the posterior atlantal arch was driven forwards and jammed inside the lateral masses. In Armstrong's case a man hit by a baseball bat in a somewhat similar fashion died of dislocation of the head from extensive ligamentous rupture. The atlas injury here was of minor importance. In Ridley's case the mechanism is not so clear, and, from the brief account of the case, it seems that the coincident fracture of the base of the skull was a more essential cause of death than the atlas injury. In the whole literature these, together with the cases reported by Sicard and Roger, by Blanc, and by Scott—six in all—represent the sum total of atlantal fracture by this direct mechanism. Gunshot wounds have been ruled out of the present series as they are of no particular interest.

On the whole the theory of transmitted force, of atlantal squeeze, is the one which fits the facts in the majority of the cases. The possibility that the anterior arch might be broken by the pressure of the odontoid process presents itself, and it may well be an accessory mechanism, if not the primary cause. Too much space would be required to discuss the matter in detail here.

Pathological Anatomy.

An analysis of the cases in which the description of the fracture is sufficiently clear shows that fracture of the posterior arch is the most frequent type, sometimes on one

side only, sometimes on both, so that the arch is mobilized. In spite of this little harm ensues, as there is generally little or no displacement and the periosteum may not be ruptured.

Anterior arch alone	8 cases
Posterior arch alone	29 ,,
Both arches	12 ,,
Lateral mass	7 ,,
Transverse process	3 ,,

The posterior arch is more often broken because it is weakened by the grooves for the vertebral arteries. But in addition the long axis of the facets for the occipital condyles, being placed diagonally, may assist by tending to splay the arch behind, opening it like a fan.

Coincidental Injury.

(*a*) Easily the most common associated injury is fracture of the odontoid process, which has occurred at least seventeen times. Authors mention anterior and posterior luxation of the atlas in their records, without seeming to realize that this cannot occur unless one of two things has happened—fracture of the odontoid or rupture of the transverse ligament. The former is more probable. This luxation rather than the atlantal fracture has often been the real cause of death (see Table II).

(*b*) The vertebral artery may be ruptured. The region of the grooves for this vessel on the posterior seems to be a favourite site for fracture, and here the artery is bound down in close contact with the bone by a ligamentous slip passing over it. It is not uncommon to find this ligament ossified, and it then shows clearly in *x*-ray films. If the ligament is only partly ossified it appears in *x*-ray films as a spicule, and may be mistaken by the unwary for the relic of an old fracture. The elasticity of the vessel wall and the usual lack of displacement of the fragments accounts for the relative rarity of injury to this vessel.

(*c*) The great occipital nerve. As was first pointed out by Sicard and Roger, this nerve may be injured, indeed ruptured, in atlantal injury. Several examples will be found amongst the tabulated cases, including some of my own. Occipital neuralgia after injuries to the upper two cervical vertebrae is certainly very common, and is a useful clinical help in drawing attention to the possibility of fracture having occurred in otherwise doubtful cases.

(*d*) Injury to the spinal cord or lower end of the medulla. For the reasons already detailed this complication does not happen often in pure atlantal injury. We have seen that the bone fragments tend to move away from the cord in the average case, and that there is often little or no displacement of bone fragments. Thus in the whole series of uncomplicated atlas fractures, twenty-one in number, the medulla was found injured by a bone fragment in only two (Betz, Boullard). Myelitis, probably traumatic, accounted for two or three more. The presence of suppuration in Marshall's case is not commented on by the author. In the complicated cases the injury to the atlas often sinks into a subsidiary position, and the cord injury is inflicted at the site of the complicating fracture. For example, when the odontoid is broken off there is a great tendency for the occipito-odonto-atlantal component to be dislocated forwards, more rarely backwards, and the cord is then much more likely to suffer. A normal external appearance of the cord may have misled some observers, as this is not inconsistent with the presence of a central haemorrhage and central pulping sufficient to cause death.

SYMPTOMS OF FRACTURE OF THE ATLAS.

Pain and rigidity of the neck, so that movements of the head are slowly and hardly performed, are the outstanding features. The patient in the first few days has the greatest difficulty in finding a comfortable position in bed and is constantly demanding a change in the arrange-

TABLE I.—*Isolated Fractures of the Atlas (20 Cases).*

Author.	Nature of Accident.	Clinical Signs of Cord or Nerve Injury.	Anatomical Diagnosis.	Result.
1. Astley Cooper (Cline's case). 1822.	Severe fall injuring neck (3-year-old boy)	None	Both arches of atlas broken across	Died 12 months later (intercurrent disease presumably). No mention of condition of cord at autopsy.
2. Boullard. 1849...	Basket heavy with moisture fell from a height on upper and back part of head	Pain in neck. No paralysis at first, but cramps developed. Complete paralysis before death	Fracture of posterior arch of atlas, right. Comminuted anterior arch fracture on to inferior articular facet, lateral mass, left	Lived 38 days.
3. Marshall, J. 1875	Fell from second story window	Monoplegia right arm, progressing to triplegia, both arms and right leg	Fracture right lateral mass of atlas	Died 9 days later, infection of fracture, with myelitis of cord.
4. Betz. 1880 ...	Fell on neck and shoulder	Progressive paralysis of arms and legs	Isolated fracture of posterior arch of atlas	Died 3 months later. Half-cm. piece of bone driven against medulla. Focal haemorrhage in medulla.
5. Hugues. 1897 ...	Healthy woman struck on back of neck with a stick	Instant death	Fracture posterior arch of atlas, right and left, through grooves for vertebral arteries. Arch driven in and impacted. Vertebral arteries torn	Instant death.
6. Ludloff. 1906 ...	Not available	Not available	Fracture left lateral mass of atlas	Recovered.
7. Holding. 1905 ...	Fell down stairs on to back of head	No cord signs. Severe occipital neuralgia	Isolated fracture of atlas	Recovered.
8. Quercioli. 1908	Fell from tree	No limb palsies. Dysphagia.	Atlas broken into four pieces by symmetrical fractures of both arteries	Died 13 days later from pneumonia *ab ingestis*. Cord found uninjured at autopsy.
9. Corner. 1909 ...	Rolled out of chair with head flexed	No cord signs. Severe neuralgia great occipital nerve	Fracture of atlas	Recovered.
10. Schneider. 1911	Fell down stairs	Monoplegia right arm; recovered	Fracture anterior arch of atlas	Recovered.
11. Park. 1913 ...	Not available	Not available	Fracture anterior arch of atlas	Recovered. Caries of atlas, extrusion of sequestrum by the mouth 45 days later.
12. Sicard and Roger. 1916	Bale of paper dropped on to head from a height	No cord signs. Anaesthesia left great occipital nerve	Fracture posterior arch of atlas	Died 1 month later of pneumonia. No injury to cord; left suboccipital nerve almost divided by bone fragment.
13. Sicard and Roger. 1916	Fell 6 ft. on to head	No cord signs. Anaesthesia left great occipital nerve	Fracture posterior arch of atlas, left side	Recovered.
14. Sicard and Roger. 1916	Struck by a beam on left side of back of head and neck	No cord signs. Anaesthesia left great occipital nerve	Fracture posterior arch of atlas, left side	Recovered.
15. George. 1919 ...	Not available	No clinical details	Fracture posterior arch of atlas, two places	Presumed recovered.
16. George (Butler's case). 1919	Not available	No clinical details	Fracture posterior arch of atlas, one place	Presumed recovered.
17. Jefferson. 1920...	Aeroplane crash; fall on to head	None	Fracture posterior arch of atlas, two places	Recovered.
18. Jefferson (Langstaff's case). 1920	Thrown from horse	Laceration brain stem	Fracture posterior arch of atlas, two places	Died immediately.
19. Arnison (private communication)	Man thrown from horse on to head	Pain, rigidity of neck. No signs of cord injury and compression	Fracture posterior arch of atlas	Recovered. Still rides to hounds.
20.	See text			Recovered.

TABLE II.—*Complicated Fractures of the Atlas (45 Cases).*

Author.	Nature of Accident.	Clinical Signs of Cord or Nerve Injury.	Anatomical Diagnosis.	Result.
1. Bell Charles. 1824	Fell fifty feet on to shoulders	—	Fracture (? posterior) arch and portion of body of atlas. Odontoid process broken off	Instantaneous death, presumably from medullary injury. Autopsy, but no mention of condition of brain stem.
2. Phillips. 1837 ...	Fell off hayrick on to occiput	None	Fracture posterior arch of atlas in two places. Dislocation of remaining part forwards. Odontoid process broken off	Died 47 weeks later of anasarca (nephritis). Fracture had done well.
3. Spangenbern. 1845	Fell off horse on to head	None	Fracture posterior arch of atlas. Odontoid broken off	Died 15 months later. Osteomyelitis of atlas and axis. Cord normal.
4. South. 1847 ...	Fell down stairs	Tetraplegia, with hyperaesthesia right half of the body	Atlas broken in two places. Odontoid broken off. Fracture 5th cervical vertebra	Died 5 days later. Haematomyelia level of 5th cervical vertebra.
5. Melicher. 1848...	Woman fell backwards down a ladder, 7 ft.	Violent pains in neck and occiput. Weakness of lower limbs progressing slowly to total paralysis	Fracture anterior arch of atlas. Odontoid process broken off	Died 34 days later.
6. Melchiori. 1850...	Fell off ladder	—	Posterior arch of atlas broken in two places. Odontoid broken off. Dislocation atlas on axis	Died instantaneously. Brain stem compressed.
7. Speyer. 1851 ...	Fell on head	Monoplegia right arm, progressing to other limbs	Fracture both arches of atlas. Odontoid broken off	Died 10 days later. No gross injury to cord. Blood extravasation over medulla.
8. Gascoigne. 1856	Hat jammed down on to head and pulled from side to side (tavern horse-play)	Head fell forwards, chin on breast. Paralysed	Fracture posterior arch of atlas, and arches of 2, 3, 4 cervical vertebrae. Partial luxation C.3 on 4	Died in 40 minutes.
9. Uhde. 1855 ...	Man fell from tree on to occiput and back	Pain in the neck. Palsy lower extremities, later of upper also	Fracture posterior arch of atlas, also of neural arch of axis. Fracture C. 6, 7	Died 13 days later.
10. Birkett. 1859 ...	Man fell downstairs intoxicated	Completely paralysed below neck	Fracture posterior arch of atlas. C.3 dislocated forwards on C.4	Died in 36 hours.
11. Ridley. 1869 ...	Man knocked down by blow, back of head came against kerbstone	Pain in neck, bleeding from ears. General headache. Deep furrow between atlas and occiput	Fracture posterior arch of atlas. Dislocation of atlas forwards. Fracture of occipital, parietal and temporal bones	Died 3 days later in convulsions.
12. Gayet. 1870 ..	Slipped on stairs, arrested fall with a jerk	Severe pain in neck. Supported head with hand. Palsy appeared four weeks later	Fracture lateral mass of atlas and of axis. Fracture odontoid process.	Died 5 to 6 weeks later.
13. Hamilton. 1872	Fell 40 ft. on to vertex	Paraplegia below the nipple level. Arms normal	Fractures of both arches and right transverse process of atlas. Odontoid uninjured. Fracture 6th cervical vertebra	Died 48 hours later. Cord compressed at level of 6th cervical vertebra.
14. Milner. 1874 ...	Fell off roof, neck probably flexed	—	Posterior arch of atlas fractured in two places. Complete dislocation of occiput from atlas	Died instantaneously. Medulla found divided at necropsy.
15. McCarthy. 1874	Fell head foremost down hold	Tetraplegia arms and legs	Atlas broken into five fragments. Odontoid broken off	Died 3½ days later. Cord concussed, no compression.
16. May. 1876 ...	Fell 15 ft. on to back of head	No definite cord signs; fully recovered later	Fracture of posterior arch of atlas. Odontoid broken off. Rotary dislocation atlas on axis. Fracture transverse processes 5th and 6th cervical vertebrae	Died 3½ years later, maniacal, suffocated with piece of meat. Groove for first cervical nerve found absorbed at autopsy. Cord normal.
17. Eberman. 1879	Fell from steps, struck occiput against ground	Walked to his room supporting neck with hands	Fracture transverse process of atlas. Fracture through body of C.3	Died in 30 minutes.
18. Armstrong. 1885	Man hit on back of neck or head by baseball bat	Died almost immediately	Fracture transverse process of atlas. Rupture alto-axoid ligaments	Died in few minutes.
19. Francis. 1886 ...	Man fell 20 ft., striking upper and back part of head against a plank	Rigid neck, paralysis left lower limb and both upper limbs	Fracture posterior arch of atlas. Vertical fracture of axis through pedicles	Died 37 days after injury.
20. Lannelongue 1888	Fell backwards off cart, struck head on ground	Severe pain, rigidity of neck. Seventeen days later limbs paralysis began and he died in a few hours	Fracture anterior and posterior arches of atlas. Odontoid process broken off at its base. Transverse ligament intact	Died 18 days later.
21. Berndt. 1893 ..	Fell forwards down steps	Diplegia right arm and leg, anaesthesia of left side (Brown-Sequard palsy)	Transverse fracture anterior arch of atlas. Odontoid broken off. Rotary dislocation of atlas on axis	Died one month later. Compression of right half of cord, no gross lesion of brain stem.
22. Kocher. 1896 ...	Fell 10 ft. on to head	None	Probable fracture of atlas and of odontoid	Recovered.
23. Smith and Clegg. 1893	Cab-driver fell off box seat, head strongly flexed under body	Kept alive for 3 hours by artificial respiration. Tetraplegia	Fracture anterior and posterior arches of atlas. Odontoid process broken off. Transverse ligament intact	Died 3 hours later.
24. Picqué (Billot's case). 1900	Fell 11 ft.	Difficulty in swallowing, no limb palsies	Fracture of anterior arch of atlas. Rotary dislocation atlas on axis	Recovered.
25. Scott. 1904 ...	Hit on back of neck with heavy stick	None. Walked about	Fracture of both arches of atlas in middle. Odontoid broken off	Died 10 days later of tetanus. Cord normal.
26. Corner. 1905 ...	Museum specimen. History unknown	—	Atlas misshapen by healed fractures: (1) Comminuted racture right lateral mass; (2) fracture posterior arch in centre. Atlas ankylosed to occiput Fracture body of axis	Survived some time.
27. Corner. 1907 ...	Fell off horse on forehead	Dysphagia and thick speech. No affection of limbs	Fracture of anterior arch of atlas. Rotary dislocation of atlas on axis. Condition of odontoid doubtful	Recovered.
28. Van Assen. 1908	Fell 13 ft. head foremost	No cord signs. Occipital neuralgia	Fracture both arches at atlas. ? Fracture of odontoid. ? Rotary dislocation of atlas on axis	Recovered.
29. Blackwood. 1908	Fell 4 ft. on to right side of head	Total paralysis below level of larynx. Kept alive for 34 hours and 40 minutes by artificial respiration	Atlas fracture in three places, both arches. Odontoid broken off. Dislocation of occiput on axis	Died 35 hours later. Haemorrhage into cord from level of foramen magnum to third cervical vertebra.
30. Blanc. 1908 ...	Hit on back of neck with heavy timber, head flexed	Concussion. Diplegia both arms	Fracture of atlas. Fracture of axis. Forward luxation of atlas on axis	Recovered. Palsies improved when seen 6 years later.
31. Mixter and Osgood. 1910	Fell down 13 stairs	Severe occipital neuralgia. No cord signs	Fracture of anterior arch of atlas. Rotary dislocation of atlas on axis	Recovered.
32. Mixter and Osgood. 1910	Railway accident	All four limbs became spastic 2½ months after accident	Fracture posterior arch of atlas. Complete dislocation of atlas on axis	Died suddenly 1 month after laminectomy and 5 months after injury. No autopsy.
33. Mixter and Osgood. 1910	Fell from a height on to right side of head and neck	Right occipital neuralgia. Monoplegia right arm	Fracture posterior arch of atlas, right side. Rotary dislocation of atlas on axis	Recovered.
34. Pilcher. 1910 ...	Fell 15 ft. on to forehead	Diplegia right arm and leg, improved by laminectomy. Palsy developed 2½ months after accident. Occipital neuralgia	Fracture lateral mass of atlas, body of axis compressed. Rotary dislocation of atlas on axis, with which it is ankylosed	Recovered. Seen 9 years later: right hand weak, leg recovered.

TABLE II.—*Complicated Fractures of the Atlas (45 Cases). (Continued.)*

Author.	Nature of Accident.	Clinical Signs of Cord or Nerve Injury.	Anatomical Diagnosis.	Result.
35. Schepelman. 1910	Fell 9 ft. on to occiput	Headache, rigidity of neck. No neurological signs	Fracture posterior arch of atlas, also of 7th thoracic vertebra	Recovered.
36. Boeckel. 1911 ...	Fell some 12 ft. head foremost on to sand	None	Fracture right lateral mass of atlas. Rotary dislocation of atlas on axis	Recovered.
37. Brooks. 1915 ...	A fall. No details	Monoplegia left arm. Speech thick	Fracture of both arches of atlas in two places. Odontoid broken off	Died suddenly 24 hours later, presumably from injury to cord.
38. Jefferson. 1920	Unknown (museum specimen)	Unknown	Fracture of anterior and posterior arches of atlas. Fracture of odontoid	Lived a short time.
39. Smith. 1921 ...	Dived into shallow water, struck head on bottom	Pain, rigidity of neck. No neurological signs	Fracture posterior arch of atlas. Anterior luxation of atlas	Recovered.
40. Bradfield. 1922	Boy fell into a well containing little water	Unconscious short time. Pain and rigidity of neck	Fracture of atlas and anterior dislocation (? fractured odontoid)	Recovered.
41. Williams. 1922...	Blown up by shell, fell on head	Both legs and left arm paralysed for some time	Fracture of atlas and second and third cervical vertebrae	Recovered.
42. Marinesco and Ludovici. 1923	Injured by locomotive	Fractured skull and femur. Tetraplegia	Fractures of atlas and axis vertebrae	Alive 13 months after injury.
43. Forbes	Man thrown into air in a logging accident. Pitched on head	Severe pain in neck and shoulders. Neck held stiffly. Great pain in scalp	Fracture posterior arch of atlas. Fissured fractures through bodies of C. 2 and 3	Recovered. Fracture united 4 months later.
44 and 45.	See text.			

ment of pillows. Some movement of the head is usually possible, as the lower cervical joints permit of a certain degree of movement. Nodding movements, the movements of "Yes" and "No," are particularly difficult. There may be pain streaming up into the occipital portion of the scalp, even when anaesthesia in one of the great occipital nerve fields is present (anaesthesia dolorosa). Sometimes pain and tingling in the limbs may be experienced, even when neurological examination fails to detect any signs of spinal damage. This may persist later, especially on turning the head. I find that if the finger in a *post-mortem* specimen is thrust from above through the foramen magnum into the spinal canal and the head is then rotated from side to side a remarkable diminution in the size of the canal takes place, so that the finger is gently squeezed. This may be the explanation of the clinical fact just mentioned (compare Case iii). Palpation through the mouth gives little help in the uncomplicated type, except that the attempt to examine may disclose how painful is any movement of the head. Dysphagia may be complained of. This seems to be due to mechanical, muscular causes, and does not necessarily indicate injury to the brain stem or cranial nerves, for many patients who have had no nervous lesion have complained of it. When signs of damage to the spinal cord are present the injury is probably at a lower level than the atlas, or the odontoid has been broken as well, and an anterior luxation of the atlanto-odontoid-occipital component is likely to be present. Much greater care is needed in the handling of such cases, and flexion of the head must be prevented at all costs.

Such clinical signs as have been outlined merely suggest that a high vertebral injury may be present. The only certain means of diagnosis is radiography.

TREATMENT.

Once the diagnosis is certain, steps must be taken to immobilize the head, neck, and shoulders, and this is best achieved by plaster-of-Paris. If one could be quite certain that the posterior arch alone was broken it is doubtful whether any special fixation is really necessary save in so far as it relieves pain and makes the patient more comfortable. The anterior arch may also be broken without any very clear evidence of this fact being shown by *x* rays. So that it is safer to treat an apparently uncomplicated atlas fracture on strict lines, for if both arches are broken the transverse ligament is alone holding the two halves of the bone together. The treatment of the complicated cases is beyond the scope of the present article, for in these the complicating factor is generally the more important and the more dangerous.

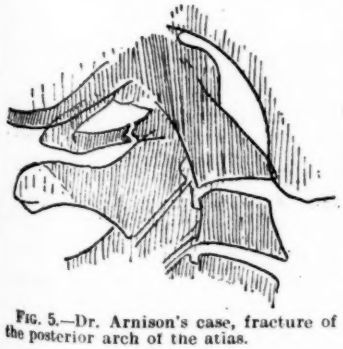

FIG. 5.—Dr. Arnison's case, fracture of the posterior arch of the atlas.

In the following tables a brief synopsis will be found of all cases of atlas fracture the records of which have been accessible to me. I have to thank Dr. W. D. Arnison of Newcastle-on-Tyne for very kindly sending me details of an unpublished case and also a print (Fig. 5). I am grateful for a similar courtesy from Dr. R. D. Forbes of Seattle, Wash., U.S.A. (Fig. 6), a very excellent example.

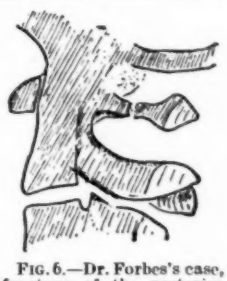

FIG. 6.—Dr. Forbes's case, fracture of the posterior arch of the atlas.

The tables will be found, I trust, self-explanatory. I have omitted injuries caused by firearms, of which there are some half-dozen cases recorded, as these are of no particular interest, save that a person may survive them. This entails the elision of one case of my own which appeared in the 1920 paper. The isolated fracture of the atlas is rarer than the complicated, and the death rate from the latter is distinctly higher. Indeed, in many of the cases it is evident that the atlantal injury *per se* played anything but a dominant part in causing death.

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ANASTOMOSIS OF RECURRENT LARYNGEAL TO PHRENIC NERVES:

SOME RECOVERY OF FUNCTION.

BY

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THE following case of complete traumatic division of both recurrent laryngeal nerves was treated by anastomosis of each nerve to the phrenic nerve of the same side. Some recovery of function was, as will be seen, observed.

The patient, a woman 52 years of age, was seen by one of us in May, 1926. She was suffering from aphonia and attacks of dyspnoea. The vocal cords were completely paralysed; the patient was breathing through a very narrow chink, and there was constant stridor. The inner borders of the cords were slightly concave, tension was absent, and a slight flapping movement was observed during respiration. She was having frequent attacks of severe dyspnoea, during which she became cyanotic. She spoke in a voiceless whisper.

The history was that in October, 1925, she had been operated on in a hospital in another city for adenoma of the thyroid gland. Since that operation she had suffered from dyspnoea and cyanosis as above described. She was admitted to the Northampton General Hospital. As long as she remained quite quietly in bed on her back without attempting to speak no attack of dyspnoea occurred, but she was not able to take sufficient nourishment. The question of tracheotomy was considered, but it was determined to attempt treatment by nerve anastomosis.

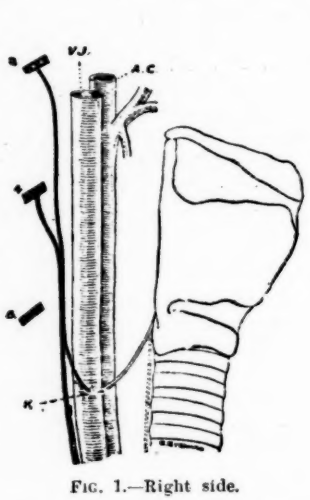

FIG. 1.—Right side.

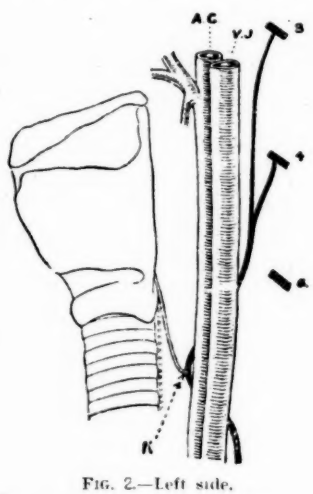

FIG. 2.—Left side.

3, 4, 5, Anterior primary divisions of the cervical spinal nerves. A.C., Carotid artery. V.J., Jugular vein. K, Site of anastomosis.

First Operation.

On June 5th, 1926, a general anaesthetic was administered by Dr. J. P. Traylen of Northampton. An incision was made along the anterior border of the sterno-mastoid muscle on the right side. It was seen then that a mass of scar tissue extended from the cricoid cartilage to the sternum. The recurrent laryngeal nerve was identified in the region of the inferior cornu of the thyroid cartilage and followed downwards in the scar tissue for 1⅛ inches. Beyond this point no nerve could be found. The portion of recurrent laryngeal nerve was then freed from the scar tissue and stimulated with the faradic current, but no movement of the right vocal cord was detected.

The sterno-mastoid muscle was now retracted backwards and the search for the phrenic nerve commenced. It also was embedded in scar tissue, but as the phrenic is a larger nerve than the recurrent laryngeal the difficulty of identifying it was not so great. It was then found that it was not possible to bring the end of the recurrent laryngeal nerve to the side of the phrenic so as to perform a recurrent laryngeal-phrenic end-to-side anastomosis. A search was then made in the scar tissue for the descendens noni nerve, for if this nerve could be found the phrenic nerve could be divided and the following anastomoses done: (1) Recurrent laryngeal-phrenic anastomosis end-to-end; (2) Descendens noni-phrenic anastomosis end-to-end. But the descendens noni nerve could not be followed in the mass of scar tissue, and the only piece of this nerve seen was a short portion, useless for anastomosis, extending downwards from the lower border of the hypoglossal nerve.

Thus another plan of anastomosis of necessity had to be adopted. The main trunk of the phrenic nerve was divided through not quite half its diameter, and this smaller portion of the nerve was dissected upwards free of the larger portion for five-eighths of an inch. It was then found that it was possible to bring this portion of the phrenic nerve across the carotid sheath and unite it end-to-end to the recurrent laryngeal nerve without tension (See Fig. 1). On stimulating with the faradic current the phrenic nerve distal to the region from which a portion of the nerve had been separated in order to unite it to the recurrent laryngeal the right half of the diaphragm contracted. There was no difficulty in maintaining a sufficient airway during anaesthesia, though there was a good deal of noise during induction and some stridor for one week subsequently. After the operation the left side of the epigastrium moved much more than the right side, indicating partial or complete paralysis of the right half of the diaphragm.

Second Operation.

On July 3rd, 1926, a general anaesthetic was again given by Dr. Traylen. A similar operation was performed on the left side as had one month previously been carried out on the right side. The scar tissue was more extensive on the left side of the neck than on the right, and the operation was, if anything, more difficult. The identified portion of the recurrent laryngeal nerve was not more than 1 inch in length. The phrenic nerve was isolated and freed for some little distance. It was then drawn under the carotid sheath and a recurrent laryngeal-phrenic anastomosis effected, end-to-side, by means of a very fine suture (see Fig. 2). The tension on the incision in the phrenic caused it to gape, so a second suture was employed to close the gap.

The right half of the diaphragm still appeared to be paralysed, and the second operation paralysed the left half of the diaphragm.

Prognosis.

By July 24th there was appreciable improvement in tone of the right cord. During August and September, 1926, the patient was gaining weight at the rate of about 1 lb. a week. She had occasional slight attacks of dyspnoea until the end of July, but since then she has not had any difficulty with respiration, except that she is still "short of breath" on exertion, such as climbing stairs rapidly. There had not been any laryngeal stridor since the end of July, 1926.

In August the patient left Northampton and went to live in Newcastle. On September 18th Mr. W. F. Wilson reported "some definite movement and adduction of the right cord on attempting phonation, which is husky but distinctly audible; the left cord is motionless and apparently fixed in the mid position." At the end of September regular daily electrical stimulation, galvanic and faradic, across the larynx was begun. On November 8th Mr. Wilson reported "there was definite movement on both sides of the diaphragm, which was well domed, and showed good muscular tone. The right cord moved better than the left, which had very little action, though its arytenoid (left) showed a marked pivotal movement to the extent of crossing the mid-line and pushing the right arytenoid away therefrom."

At the end of November the patient returned to Northampton and was seen by one of us. There was then definite movement in the right cord, strong adduction, and abduction amounting to about one-quarter of the normal range. The tone in the left cord was obviously improved—in fact, good—but there was no convincing movement. The voice was a husky whisper, rather wasteful, but with definite tone. One month later the right cord had not changed. The left showed definite adduction, but no definite abduction beyond the rebound.

In January, 1927, the patient was admitted to Northampton Hospital for more frequent electrical treatment, galvanic and faradic, across the neck. She then had strong adduction in both cords, and spoke in a loud, husky whisper. The right cord had not changed since December, but there was appreciable abduction of the left. She was instructed to stop breathing in expiration as long as possible five times thrice during the day, with the object of obtaining forced inspirations.

Movement of the left cord continued to increase, and by March 3rd, 1927, the movement on the two sides was equal, about one-third abduction on each side; adduction was strong

and phonation fairly good, though her voice was very uncertain in quality and pitch, and changed with disconcerting suddenness. It was observed that if annoyed she spoke with a strong gruff voice, but under examination began to whisper again. On this date the patient was given a general anaesthetic and Killian's laryngoscope was used. The direct view of the cord confirmed the above findings. An attempt was then made by means of a curved and insulated electrode, which was passed into the pharynx, to cause contraction of the crico-arytenoideus posticus muscles, but no abduction of the cords occurred. The only movement observed was a very vigorous adduction of the cords. The adduction movement is the stronger movement, and may have overwhelmed the weaker contractions of the abductors if this occurred.

Under deep anaesthesia a paradoxical movement of the vocal cords (inspiration adduction) was observed. This also has been seen in monkeys after this anastomosis has been done. The abductor muscles are very sensitive to deep anaesthesia. A second attempt, a month later (April 9th), to cause contraction of the abductor muscles by direct faradic stimulation was made, but the result was as before. Strong adduction of the cords was alone seen.

On May 21st, 1927, the right cord was as before, with about one-third of the normal abduction, but the left cord was obviously retrogressing; adduction was still strong, but there was no evidence of abduction beyond the rebound.

On June 8th, 1927, the right cord was as before; the left cord was almost motionless in mid position; a slight adduction movement alone remained. For the first time since she was seen in May, 1926, the patient spoke continuously in a fairly strong voice, not in a whisper, while under examination. Her general condition is continuing to improve.

Remarks.

The presence of an extensive area of scar tissue on both sides of the neck not only made the operations of great difficulty, but made us doubtful of a satisfactory result.

The patient had definite improvement in the tone of the right cord seven weeks after the operation; the inner border of the cord was straight and tense. She had no further attacks of dyspnoea. Subsequently (four months after the first operation) she had definite laryngeal tone in the voice and definite movement of the right cord.

Nine months after operation she sometimes spoke in a strong voice (we are of the opinion that there is a functional element in her aphonia) and had abduction of both vocal cords giving rather less than one-third of a normal glottis opening. Adduction was strong. Her general health was definitely improved, though still far from good.

Nearly one year after the operation the left cord could no longer be seen to abduct. We are of opinion that the condition of the right cord is permanent. It has strong adduction and crosses the mid-line, and abduction to one-third of the normal.

It may be asked, what has the patient gained by these anastomoses? The answer is that she has been saved from imminent suffocation, and can now go about the world without fear of sudden death, and that though the result is far from perfect, owing to the peculiar circumstances of the case, we think it is better than if the woman had been permanently sentenced to the wearing of a tracheotomy tube. She has also gained a fairly good voice.

The period of time required for the recovery of tone in the cord and the commencement of movement in the cord in this patient coincides with what has been observed in corresponding experiments in the monkey. In man when an end-to-side recurrent laryngeal-phrenic anastomosis is done we recommend that the nerves should be passed behind and not in front of the carotid sheath.

It is to be noted that both halves of the diaphragm recovered their complete motility. The paralysis of the diaphragm did not appear to inconvenience the patient. Part of the right half of the diaphragm was probably recovering before the second operation was done.

The splitting of the phrenic nerve on the right side appeared to us an unsatisfactory method of anastomosis, and one likely to be specially sensitive to pressure by scar tissue, but it has given a better result than the end-to-side anastomosis on the left side. On the left side, however, tension at the anastomosis could not be avoided, and tension at the site of nerve anastomosis may spoil the result of any such operation.

THE EXPERIMENTAL PREVENTION OF STONE IN THE BLADDER IN RATS.*

BY

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IN a paper in the JOURNAL of April 16th, 1927 (p. 717), the experimental production of stone in the bladder in rats was recorded. The composition of the calculus-producing diet was:

Tinned Scotch oatmeal or *atta**	53 parts
Linseed meal	20 ,,
Tinned cornflour	25 ,,
Sodium chloride	1 ,,
Calcium phosphate	1 ,,
Distilled water	*ad libitum*

* Atta is whole-wheat flour.

The present report deals with the prevention of stone in the bladder in rats fed on an "oatmeal diet" of the above composition.

THE EXPERIMENT.

Two groups of young rats, 18 in each, were selected; their aggregate body weight was the same—910 grams. There were 9 males and 9 females in each group. The body weight of the males ranged from 50 to 58 grams, of the females from 46 to 52 grams; all were of approximately the same age. The 36 animals were confined in twelve precisely similar cages; 3 males or 3 females being placed in each. All were fed on the oatmeal diet and water, and were allowed to eat as much as they liked. One group received fresh whole milk in addition to the oatmeal diet; the other did not. A ration of 2 ounces of milk was provided for the three rats in each cage, but some secured more than their share.

The experiment was continued until the death of all animals receiving the oatmeal diet without milk; the last two animals died on the 150th day. The experiment was protracted for a further seventeen days in the case of the animals receiving milk in addition to the oatmeal diet; the survivors (15) on this regimen were killed by drowning on the 167th day. All animals were subjected to *post-mortem* examination.

RESULTS.

The results of the experiment may be summarized as follows:

The animals fed on the oatmeal diet without milk grew badly; all died within periods ranging from 66 to 150 days. Nine (50 per cent.) were found at *post-mortem* examination to have stones or gravel or both in the bladder, usually with, but in one case without, cystitis. Cystitis was present in one case without associated stone or gravel. The stones ranged in weight from 2.4 to 99 mg. The sequelae of calculus (dilated ureter, hydronephrosis, and pyonephrosis) were not present in any case in this series; nor was stone found in the ureter or kidney. In one animal a large grey-white, pear-shaped, fibrinous mass was present in the bladder, the thin end being drawn out into a fine thread which extended into the urethra; this condition was associated with haematuria. Bloody urine was passed by two other animals, in one of which cystitis was present in association with a number of minute stones (gravel). The three animals in which haematuria was observed prior to death were found at *post-mortem* examination to have suffered from severe anaemia, associated with a lemon-yellow tinting of the skin and subcutaneous tissues. Three of the 18 rats in this group died of pneumonia; in 3 others no cause of death could be found except asthenia.

The animals fed on the oatmeal diet with milk grew well as a rule, though some better than others; this was no doubt due to the fact that some of them secured more of the milk ration. Two died of pneumonia, and one of an unknown cause. The other 15 remained in good health.

* This abstract is published by permission of the Director-General, Indian Medical Service. The full paper will appear in the *Indian Journal of Medical Research*.

Neither stone in the bladder nor gravel, or cystitis, or any abnormality of the urinary tract was found at *post-mortem* examination in any of these 18 animals.

CONCLUSION.

The addition of whole milk, in the proportion of two-thirds of an ounce per rat daily, to a diet capable of causing urolithiasis in 50 per cent. of young rats, completely prevented the development of phosphatic calculi.

THE BACTERICIDAL ACTION OF LIGHT ON TUBERCLE BACILLI.

BY

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(From the National Institute for Medical Research, Mount Vernon, Hampstead.)

THE value of ultra-violet rays in the treatment of lupus vulgaris is well established, but the mechanism of their mode of action is still a matter of controversy. Some maintain that the local application of light produces direct bactericidal action in the depths of the lupus nodule. If there is no direct bactericidal action of these rays, some general effect on the whole body or the local effects of irradiation must be responsible for the results and cures which have been obtained.

While bacteria can be readily destroyed by exposure to light, the culture medium, the depth of layer of fluid, the age of the culture, the intensity of light, and temperature are all important factors. Coliform bacilli suspended in Ringer's solution are readily destroyed by long ultra-violet rays, staphylococci by short rays, while, according to Weisner,[1] the Friedländer pneumo-bacillus is resistant to light owing to the mucous envelope surrounding the organism. Robert Koch[2] found that cultures of tubercle bacilli were destroyed by prolonged exposure to sunlight which passed through the window glass of his laboratory. J. Bang showed the bactericidal action of the concentrated Finsen light on the tubercle bacillus, and the *Staphylococcus pyogenus aureus*. Mme V. Henri[3] and Baroni investigated the effects of irradiation of tubercle bacilli with the mercury quartz arc, and found that the bacilli lost their acid-fast staining reaction after three to four minutes' exposure, and were destroyed after ten minutes. Kattenbracher found that tubercle bacilli were readily killed after five to sixty seconds' exposure to the iron arc. Such experiments have definitely proved the bactericidal action of ultra-violet rays on the tubercle bacillus, but in the case of sunlight the effect of ultra-violet rays has not been clearly separated from heat effects. Thus, results obtained from the experiments of Mitchell and Crough,[4] von Bergen, Triskanokaja, and Fr. Krusius show variations in the lethal time from half an hour to six hours.

While concentrated solutions of tuberculin are resistant to light,[5] solutions of 1 in 1,000 concentration can be weakened by exposure to rays shorter than 3,250 A.U. Recently W. Hausmann,[5] W. Neumann, and K. Schuberth have shown that inoculations of irradiated tuberculin do not give rise to any local reaction, but the usual general reaction is obtained.

As the review of the literature indicated that the tubercle bacillus can be destroyed by ultra-violet rays, but failed to demonstrate the selective region, further investigations were carried out. Surface scrapings of a fourteen-day culture of tubercle bacilli (a virulent bovine strain obtained from Captain S. R. Douglas) were placed in a sterile test tube; 250 mg. of this culture were mixed with 250 c.cm. of sterile saline, and quantities of 50 c.cm. of the mixture were placed into sterile vaccine bottles and sealed off.

EXPERIMENT 1.—*Control.*

Four guinea-pigs were inoculated subcutaneously into the right thigh with 1 c.cm. of the suspension of tubercle bacilli in saline (dose=1 mg. of tubercle bacilli). The animals were kept under observation, and the time of the appearance of a hard swollen inguinal gland was recorded. Forty-one days after inoculation all the animals were killed and *post-mortem* examinations were performed. All these animals had generalized tuberculosis.

EXPERIMENT 2.—*Exposure of Tubercle Bacilli to Mercury Vapour Lamp* (7,620-2,300 A.U.)

Of the emulsion of tubercle bacilli in saline 15 c.cm. were placed in a sterile quartz flask. The flask was attached to an electric motor and was exposed to two mercury vapour lamps (K.B.B. type, 2.5 amperes, 210 volts, D.C.) eight inches distant. The flask was slowly rotated during the exposure, so that a thin fresh film of fluid was constantly exposed to the lamp. The flask was kept cool during rotation by a trough filled with cold water. At intervals of 5, 10, 15, 30, and 60 minutes samples of the suspension of the irradiated bacilli were removed from the flask and 1 c.cm. of each specimen inoculated into a guinea-pig. The experiment began on December 20th, 1926, and ended on January 31st, 1927, when the animals were killed.

Time of Exposure to Lamps.	Weight.	Weight when Killed.	Result when Killed.
	Grams.	Grams.	
5 minutes	500	—	Died December 24th, 1926; ? cause pneumonia.
10 "	330	520	No evidence of tuberculosis.
10 "	330	600+	Small caseous gland 2 by 0.5 by 0.5 c.m.
15 "	370	590	Healthy when killed.
15 "	450	590	No histological evidence of tuberculosis.
30 "	310	420	
30 "	510	600+	
60 "	390	430	Healthy.
60 "	410	510	

Conclusion.—The tubercle bacilli suspended in saline are destroyed after 10 minutes' exposure to the radiations (7,620-2,300 A.U.) of the mercury vapour lamp.

EXPERIMENT 3.—*Exposure of Bacilli to Mercury Vapour Lamp (Filtered).*

Tubercle bacilli were exposed as in experiment No. 2 to radiations of a quartz mercury vapour lamp, but filtered through a screen of vitaglass (radiations=5,720-2,800 A.U.). The experiment began on December 12th, 1926, and ended on January 31st, 1927, when the animals were killed.

Time of Exposure to Rays.	Weight.	Weight when Killed.	Result when Killed.
	Grams.	Grams.	
5 minutes	350	450	Two small caseous glands 1 by 0.5 by 0.7 cm., and 1.5 by 0.5 by 0.7; otherwise nil.
5 "	300	360	Big caseous glands; nodule in spleen.
10 "	375	560	Small caseous inguinal gland.
10 "	330	540	Small caseous inguinal gland 1 by 0.5 by 0.5 c.m.
15 "	420	550	Nil.
15 "	390	390	Small caseous inguinal gland 1 by 0.75 by 0.5 cm.
30 "	350	600+ (pregnant)	Nil.
30 "	325	470	Nil.
60 "	380	510	Nil.
60 "	360	570	Nil.

Conclusions.—The tubercle bacilli in saline are destroyed or attenuated after 30 minutes' exposure to the rays (5,720-2,800 A.U.) of the mercury vapour lamp filtered through a sheet of vitaglass, which allows the passage of rays from 5,700 to 2,800 A.U. There was evidence of a local lesion at the site of inoculation in the right groin, in the animals injected with the tubercle bacilli exposed for 5, 10, and 15 minutes. When the animals were killed on January 31st, 1927, only one guinea-pig (No. 15) showed a macroscopic tuberculous nodule in the spleen. No macroscopic or microscopic evidence of the disease was found in the remaining animals, which were injected with suspension of bacilli exposed for 30 and 60 minutes.

EXPERIMENT 4.—*Exposure of Bacilli to Mercury Vapour Lamp Through Window Glass.*

The suspension of tubercle bacilli in saline was exposed to the rays of the mercury vapour lamp as in Experiment 2, but through a screen of window glass (radiations = 5,720-3,300 A.U.). At intervals after 5, 10, 15, 30, and 60 minutes' exposure samples

were removed from the flasks and inoculated subcutaneously into guinea-pigs. The experiment began on December 20th, 1926, and ended on January 31st, 1927, when the animals were killed.

Time of Exposure to Rays 5,720–3,300 A.U.	Weight in Grams.	Weight when Killed.	Result and Remarks on *Post-mortem* Examination.
5 minutes	315	320	Generalized tuberculous nodules in spleen, liver, lungs, and glands.
5 ,,	310	440	,, ,,
10 ,,	510	530	,, ,,
10 ,,	258	350	,, ,,
15 ,,	350	500	,, ,,
15 ,,	325	420	,, ,,
30 ,,	360	530	,, ,,
30 ,,	250	390	,, ,,
60 ,,	380	450	,, ,,
60 ,,	375	510	,, ,,

Conclusions.—These rays (5,720-3,300 A.U.) have no lethal action on tubercle bacilli in saline after 5 to 60 minutes' exposure.

Experiment 5.—A second control experiment on four guinea-pigs showed the virulence of the tubercle bacillus suspended in saline and kept in the cold room at 5° C. for twenty-four hours.

Experiment 6.—Another control experiment showed the virulence of the tubercle bacillus suspension mixed with an equal quantity of rabbit's defibrinated blood.

Experiment 7.—A third control experiment showed the virulence of the tubercle bacillus suspension mixed with an equal quantity of rabbit's serum.

Experiment 8.—A suspension of tubercle bacilli in saline, mixed with defibrinated blood, was exposed to ultra-violet rays as in Experiment 2. All the animals showed tuberculous lesions.

Experiment 9.—A similar experiment was carried out with the irradiated mixture of suspension of bacilli and rabbit's serum and with like result.

Conclusions.

Tubercle bacilli mixed with blood or serum exposed in a very thin film are not killed.

Similar experiments carried out with mixtures of defibrinated rabbit's blood and staphylococci have shown that bactericidal action is noticeable after half an hour's irradiation of the thin blood film, and complete destruction of the cocci after one hour's exposure.

These experiments afford evidence that rays shorter than 3,300 A.U. are the most bactericidal on the tubercle bacillus. The long ultra-violet rays from 4,000 to 3,300 A.U. were without effect. Since the penetration of shorter rays is small, it is doubtful whether local bactericidal action occurs *in vivo* with either the local Finsen lamp or the Kromayer types of local treatment lamps. The fact that the whole range of rays from 5,760 to 2,300 emitted from the mercury vapour lamp cannot destroy tubercle bacilli in a thin blood film, even after one hour's exposure, strongly supports this view. Nagelschmidt[6] inoculated guinea-pigs with extracts of tuberculous tissue which had been irradiated with the local Finsen lamp; he claimed that the animals inoculated with the irradiated tuberculous tissue survived, while control animals inoculated with unirradiated tissue died. Klingmüller and Halberstadter[7] irradiated lupus nodules for seventy minutes with a Finsen concentration lamp and injected ground extracts of the irradiated lesions into the peritoneum of guinea-pigs. Some of these animals died later from tuberculosis. Similar experiments were carried out with virulent tubercle bacilli injected subcutaneously and intradermally, and the site of inoculation was immediately irradiated, but later all the animals were found to be suffering from generalized tuberculous disease. They concluded from their experiments that the local Finsen light treatment had no local bactericidal action, even when the tubercle bacilli were situated comparatively near the surface. H. Jansen[8] has found that the rays from the Finsen lamp can completely destroy tubercle bacilli in a lupus lesion to a depth of 0.15 mm., but the lupus nodules are usually situated 2 to 4 mm. below the skin surface. Karl Sonne and Axel-Reyn both state that the increased skin temperature which is produced with local irradiation supports the researches of Thiele and Wolf, that at higher temperatures longer wave-length rays can exercise bactericidal action. Seeing that tubercle bacilli mixed with blood or serum are not destroyed *in vitro*, it seems very improbable that any irradiation with the mercury vapour lamp of tubercle bacilli *in vivo* can result in a direct bactericidal action. With many of the lupus lesions the extensive scar tissue, ulceration, and desquamation render a lethal action still less probable. The local Finsen light, by overheating the part, may, however, have some bactericidal action.

The cure of lupus vulgaris by means of local irradiation must be due chiefly to tissue reaction. The histological changes following the irradiation of lupus lesions have been studied by R. Gassul, and indicate an inflammatory reaction in the early stages and, later, necrosis of the chronic granulomatous tissue with the formation of new connective tissue. Many theories have been advanced to explain the results which have been obtained, but no definite experimental proof has been yet described which can explain the reaction of the tissues following the general irradiation of the skin of the body, or the local application of the rays to the site of a tuberculous lesion. While the chronic tuberculous diseases of the skin and mucous surfaces respond admirably to ultra-violet radiation, the tubercle bacillus is an organism which is more resistant to the rays of the mercury vapour lamp than the staphylococcus, and apparently is only sensitive to the shorter ultra-violet rays, and from these *in vivo* it is protected by the tissues.

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Memoranda:

MEDICAL, SURGICAL, OBSTETRICAL.

TUBAL ABORTION AND RUPTURE.

AFTER reading Dr. Connell's most interesting paper on tubal abortion and rupture (June 4th, p. 1004) I felt that the following case might be of interest, as it differs so completely from other cases which have fallen to my lot.

Early on August 28th, 1926, I was called to see a married woman, aged 32, with one child aged 2 years. She gave a history of several similar attacks. On this occasion she had awakened at 5 a.m. with severe abdominal pain. Her husband gave her some brandy, which failed to ease her. A period had started two days previously; it was a week overdue. She had always been quite regular until this occasion. The loss was much the same as usual. Her colour was good, and there was certainly no pallor. The temperature was normal, and the pulse 80. There was pain and tenderness in the right iliac fossa. I persuaded her to come into hospital for observation. Internal examination added nothing to my knowledge. She was given an enema. The result was good, and she felt much better. I assumed that the appendix had emptied itself and settled down. That evening I found her sitting up in bed, chatting quite happily to the matron and feeling almost well. The next day she felt quite well. The second day after admission—at the end of four days—the period stopped, which she considered normal. She had no further loss. She asked me to remove the appendix as she had had so many of these attacks, stipulating that I should remove it even if it looked normal. I told her that I expected it would look normal after such a slight attack, and promised to remove it. She kept perfectly well until the operation on September 4th. When I reached the peritoneum I saw free blood on the other side of it. I opened the peritoneum, removed the appendix, which was fairly normal—it had a kink—closed the wound, and started afresh in the middle line. There was plenty of free blood as usual. When the uterus was got up I found to my surprise that it was the left tube which had ruptured. I removed it, and a very small foetus. The patient made a very good recovery.

The points which seemed most striking were that the onset of bleeding and pain did not synchronize more closely, and that when I saw her between three and four hours from the onset of the pain there was no pallor or collapse. It is true that she had had some brandy. Her highest temperature was 98.8° F. on the evening of her admission to hospital, and I should have expected more from peritoneal irritation by the free blood. The signs and symptoms pointed to the right side, and the ruptured tube was the left.

RUPERT BUTTERWORTH.

Wisbech.

SHRAPNEL FRAGMENT IN TONSIL.

THE following case seems to be worthy of record:

A man, aged 30, consulted me for a sore throat. Both tonsils were enlarged and injected, the right more than the left. His temperature was 101° F. I sent him home to bed, and prescribed the usual remedies, but although the temperature dropped to normal in two days the right tonsil still remained swollen and painful. On examination of the throat I saw a black speck, about the size of a pin's head, in the right tonsil, which seemed hard and resistant to a probe. I cut down on this, and removed a jagged piece of shrapnel about the size of a small bean.

Upon questioning the man, he told me that he had a shrapnel wound in his face in 1918, the point of entry being just above and in front of the right angle of the jaw.

Ardleigh, Essex. F. GUIVER.

LARYNGEAL SPASM ASSOCIATED WITH PERITONSILLAR ABSCESS.

THE following notes of an alarming and seemingly rare complication, occurring during the course of quinsy, appear worthy of record.

A youth of 18 years, who had suffered from quinsy on two or three previous occasions, developed an inflammatory swelling of the left peritonsillar tissues, which went on to abscess formation. On the afternoon of the second day of this inflammatory process he awoke suddenly from sleep and experienced great difficulty in breathing; it was most marked during inspiration, which was long drawn out and accompanied with a high-pitched wheezing noise. Expiration was prolonged, but was not so difficult as inspiration. The facial expression showed alarm and distress, eyes staring, face pale and covered with perspiration. This attack lasted from five to ten minutes and passed off as suddenly as it came, leaving respiration easy and natural. Two similar attacks of lesser severity and shorter duration occurred on the following day. The attacks ceased after the evacuation of pus on the fourth day.

The faucial swelling was typical of peritonsillar abscess, with the usual displacement of the adjacent soft palate and uvula, but at no time did the swelling or displaced palate or uvula threaten to occlude the opening of the oral pharynx. There was no appreciable oedema of the palate or fauces.

These attacks would appear to have been due to paroxysmal constriction of the larynx; oedema of the glottis would scarcely be so sudden and transient.

The patient stated that his mother, owing to a throat affection, had to have "an opening in the neck" to enable her to breathe. It is possible that this recollection, together with the associated dread of imaginary suffocation, may have been instrumental in producing spasm of the larynx.

D. GLASS, M.B.,
Surgeon Lieutenant R.N.

BLOOD TRANSFUSION IN HAEMORRHAGIC DISEASE OF THE NEWBORN.

THE memorandum in the JOURNAL of June 18th on blood transfusion in haemorrhagic disease of the newborn impresses the fact that authorities are so much agreed on the usually fatal termination of this condition, in the absence of such treatment, that a case of spontaneous recovery is worth recording.

On Christmas Day, 1926, I was called to the wife of a seaman, in labour with her third child, who was delivered of a healthy female infant weighing 7½ lb. The next morning I was informed by the nurse in attendance that the child had passed a considerable quantity of blood in the morning evacuation, but unfortunately the stool had not been preserved. At 10 a.m., however, I was able to examine a further stool, which contained a large quantity of tarry fluid, accompanied by a few small black clots and a little bright-red-stained mucus. There was no vomiting or any other abnormal symptom, and as no other cause for the bleeding could be found a diagnosis of melaena neonatorum was made. I immediately prescribed a mixture of 1 minim of the tincture of ferric chloride in water to be repeated hourly, and no other treatment was given. The child passed several more motions the same day, all containing similar matter to the one described, but was perfectly normal in every other respect. The next morning the quantity of blood in the stools was considerably diminished, and the third motion was entirely free from such matter. As there was no recurrence of the haemorrhage and the child continued to gain weight, the treatment was discontinued on the evening of the third day, and the infant made an uninterrupted recovery. Seen six months later the child was perfectly healthy in every respect.

I am indebted for permission to publish this case to Dr. M. G. Lucas of Hull.

Leeds. I. CAINER, M.B., Ch.B.Leeds.

NINETY-FIFTH ANNUAL MEETING
OF THE

British Medical Association.

Held at Edinburgh, July, 1927.

THE SECTIONS.

BRIEF SUMMARY OF PROCEEDINGS.

ARRANGEMENTS have been made to publish, during the next few months, full reports of the discussions in the Sections of the Annual Meeting at Edinburgh. Meanwhile, the notes printed below and those which will appear next week will enable members who were not present to gain a general view of the proceedings. Any errors to which attention may be drawn will be corrected in the full reports.

SECTION OF MEDICINE.

Wednesday, July 20th.

RESULTS OF INSULIN THERAPY IN DIABETES MELLITUS. PROFESSOR HUGH MACLEAN (London), opening the first discussion in this Section, emphasized the fact that in discussing the effect of insulin treatment it was essential to eliminate those cases of so-called diabetes in elderly people with glycosuria but no ketosis; such cases were not really true diabetes, and the patients often responded quite satisfactorily to dietetic treatment without insulin. Analysing his cases before the introduction of insulin treatment, Professor Maclean found that on the average no patient with true diabetes was likely to survive for more than five or six years on dietetic treatment alone, whilst in severe cases two or three years was the most that could be expected. Taking a series of 291 cases of typical diabetes treated in the Medical Unit of St. Thomas's Hospital in the four years since 1923, when insulin became available, the records showed that up to date only twelve patients had died. Several were admitted in coma; all of those living were now doing well, including two with tubercle bacilli in the sputum. Of the twelve fatal cases, one patient developed coma and died outside the hospital, one died in coma in the hospital, having failed to respond to insulin, three recovered from coma but died of cardiac failure; the others died of various complications. These results gave a death rate of only 4 per cent., whilst, judging from the older figures, it seemed probable that without insulin not more than one-third of these 291 patients would still be alive. Speaking of the difficulties encountered, Professor Maclean said that if acute infection supervened the insulin dosage must be greatly increased. In young children great care must be used, but the outlook was very hopeful, although he had as yet seen no cases in which improvement had been sufficient to enable him to discard insulin; if intercurrent disease, to which children were so prone, was accompanied by an aggravation of the diabetic symptoms, the insulin must be increased at once. Insulin had revolutionized diabetic surgery; if properly handled the diabetic had now about as good a chance as the normal patient undergoing an operation. Professor Petrén (Sweden) discussed the cause of the rising mortality rate in spite of insulin treatment, and said that the figures for Holland showed that the rate was actually falling in cases up to the age of 50, and that the whole rise occurred above the age of 65. He kept his patients on the diet used by Joslin with low protein content, and only permitted a daily ration of 50 grams of carbohydrate. He did not give glucose in coma. Dr. R. D. Lawrence (London) dealt with failures under insulin treatment; some patients either would not or could not carry out their instructions; in some a severe complication developed, such as carcinoma of the pancreas, but he had been less successful than the previous speakers in cases of coma. In circulatory failure intravenous saline with small doses of adrenaline had proved very helpful.

Dr. P. J. Cammidge (London) classified cases of glycosuria into three groups: (1) "achriatic," with defective utilization of sugar; (2) "anapothectic," with defective

storage; and (3) "epithyric," with low renal threshold. In the second class insulin was rarely needed, and in the third it was contraindicated. Dr. O. Leyton (London) also dealt with the failures of insulin. Tuberculous patients did well until secondarily infected; they then went rapidly downhill. His experience suggested that some cases of true diabetes certainly did recover with careful treatment—his own percentage of recoveries was 2—and further, that diabetes under insulin treatment was not a progressive disease. Professor Murray Lyon (Edinburgh) gave as his indications of the administration of insulin (1) clinical acidosis, (2) severe emaciation, (3) limit of sugar tolerance insufficient to maintain a useful life, (4) inability to clear sugar after careful diet. He thought it essential to free the urine from sugar in all cases, and did not object to three daily injections for this purpose.

Professor Blum (Strasbourg) laid stress on the importance of searching for latent tuberculosis before treatment. In coma he gave large doses of insulin, 40 to 50 units intravenously half-hourly; if blood-sugar examinations were impracticable the condition was controlled by urine examinations and by noting with extreme care the clinical reaction. Alkali in small doses was necessary, as there was a diminished Na content in the organs in coma. Dr. G. Graham (London) showed by statistics that the increased mortality rate was entirely due to a rise in cases between the ages of 60 and 70. He disagreed with Professor Maclean in separating the elderly glycosuric patient as not a true diabetic. Dr. C. G. Lambie suggested that in some cases there was a difficulty in the diffusion of glucose into the cells, and he considered that it was the glycosuria that must be controlled rather than the hyperglycaemia. Dr. F. B. Smith (Harrogate) warned against too hopeful prognosis in the treatment of diabetes in cases of psychoneurosis.

SECTION OF SURGERY.

Wednesday, July 20th.

Tuberculosis of the Kidney.

SIR JOHN THOMSON-WALKER, opening the first discussion in this Section, said that the mortality of nephrectomy in renal tuberculosis had fallen from 25 per cent. in 1900 to 3 per cent. at the present day. He gave an account of his own methods of diagnosis, and how the extreme difficulties in advanced cases could be overcome. After dealing with spontaneous healing and its significance he passed to treatment, advocating nephrectomy except when the disease was bilateral or pulmonary tuberculosis was present. Co-existent bone or joint disease or genital tuberculosis did not negative operation. He did not think removal of the whole ureter was necessary; he advocated suture of the wound without drainage. He employed tuberculin for two years after nephrectomy. Dr. Rollier (Leysin) advocated heliotherapy, but only as an adjunct to surgery. The outlook was rendered better by pre-operative preparation in this way and by subsequent exposure to sunshine, particularly in those cases where the wound itself subsequently became infected with the tubercle bacillus. Mr. A. Fullerton (Belfast) reported 158 cases of the disease; he believed in nephrectomy, and had had no deaths among his last 38 operations. He gave particularly interesting accounts of those cases which were not cured by nephrectomy, and of a series of patients treated by non-surgical measures alone. He also demonstrated his method of catheterization of the ureters by iliac exposure of them. Mr. H. Wade (Edinburgh) pleaded for the use of *x* rays and pyelography in diagnosis; he did not consider it necessary to search for the bacillus in the urine. Post-operative frequency of micturition could be abolished sometimes by excision of a single callous ulcer of the bladder. Mr. J. F. Dobson (Leeds) found it possible, by exposure of the ureters in cases where cystoscopy did not give information, to tell by simple inspection the condition of the corresponding kidney. It was neither necessary nor desirable to open the ureter to insert a catheter. Mr. B. J. Ward (Birmingham) laid stress upon the presence of pus in the ureteric specimen. He considered the indigo-carmine test unreliable. Dr. E. Ward (Paignton) maintained that *post-mortem* evidence of the healing of tuberculous disease of the kidney could be found if looked for. Mr. H. Temple Mursell (Johannesburg) emphasized the desirability of treatment in early stages. He was convinced of the value of heliotherapy. Mr. R. Gordon Craig (Sydney) reported two cases of spontaneous cure of the disease, and recommended epidural anaesthesia to facilitate cystoscopy.

Diaphysectomy for Acute Osteomyelitis.

Mr. W. Rankin (Glasgow) gave an interesting lantern demonstration of the treatment of acute osteomyelitis by primary diaphysectomy, and exhibited patients to show what good and speedy results could be obtained by removing the shaft in acute osteomyelitis in children under the age of 12. He emphasized the extreme importance of the after-treatment. Mr. R. Kennon (Liverpool) thought that the radiograms showed evidence of new bone formation before the operation was performed, and therefore from a surgical point of view the cases had been allowed to go on too long. Mr. M. Mamourian (Ashton-under-Lyne) thought diaphysectomy unsuitable for early cases; glass or aluminium internal splints always inhibited bone formation; after-treatment was of vital importance. He advocated early bone grafting. Mr. R. Ollerenshaw (Manchester) performed the operation for the fibula or ulna, but not for the femur, because he had obtained bad results.

SECTION OF OBSTETRICS AND GYNAECOLOGY.

Wednesday, July 20th.

Relation of Pregnancy to General Diseases.

THE first discussion in this Section was opened by Professor Munro Kerr (Glasgow), his paper being devoted to cardiac disease. He said that some of the functional disturbances which might occur were undoubtedly mechanical, from pressure of the enlarging uterus; others were caused by disturbed innervation, alterations in metabolism, or over-activity of the endocrine glands. In organic disease opinion was unanimous that it was the condition of the heart muscle which determined the gravity of the lesion. In the most recent discussion on the subject there was a general consensus of opinion about such questions as the gravity of the condition, the distress signals manifested, and the treatment to be employed. Their experience in Glasgow was that cardiac disease exacted a heavy toll of its victims, the figure generally agreed upon being somewhere between 15 and 25 per cent. Duskiness of the face, slightly increased respiration rate, crepitations at the bases of the lungs, breathlessness on slight exertion, were often more important signs than occasional irregularity that a heart was finding the strain too great. Should no improvement result after a week of medical treatment, then the pregnancy should be terminated. With aortic lesions the condition was generally very serious, so operative treatment should not be too long delayed. In mitral regurgitation it was seldom difficult to decide when a patient might be safely left to continue her pregnancy. He regarded cases of mitral stenosis as the most difficult to gauge, but he always viewed with grave concern a case which displayed marked cardiac irregularity, crepitations, and breathlessness which could not be relieved by simple measures. Obstetric treatment should on no account be delayed too long. In many cases shortening of the second stage by forceps delivery was all that was required, but in others artificial termination of the pregnancy was urgently necessary. When it was necessary to empty the uterus in the early months he was convinced that vaginal Caesarean section was the operation of choice. In the later months bougies could often be satisfactorily employed in multiparae, but in primiparae and in cases of prolonged second stage he favoured abdominal Caesarean section. Dr. E. Rist (Paris) dealt with the question of tuberculosis. He thought that it was very necessary to revise their diagnostic criteria so that early treatment might coincide with the initial stage of infection. He did not think that the ill effects of pregnancy upon a tuberculous subject could nowadays be denied. When statistics were based on reliable diagnosis they invariably showed that symptoms were aggravated, and that quiescent lesions flared up. For obvious reasons in the majority of cases tuberculosis was not suspected before pregnancy had occurred. He was not in favour of inducing

abortion, since this might influence tuberculosis as unfavourably as confinement. He was strongly in favour of artificial pneumothorax, the results of which were so good that on no single occasion had he regretted performing it. Dr. F. J. Browne (London) reviewed the influence of venereal disease on pregnancy. He estimated the frequency of syphilis at about 7 per cent. He described the signs most commonly met with in the mother and the foetus, and urged that treatment should be begun as early as possible, that the patient should be treated with arsenical preparations in every subsequent pregnancy, and that treatment might be safely continued up to the time of confinement. Even then there could be no guarantee that the child would not be a congenital syphilitic. He condemned the practice of vaginal douching in cases of gonorrhoea, preferring thorough swabbing of the vagina and cervix with a silver preparation or picric acid in spirit. He spoke favourably of detoxicated vaccines. Professor Gibbon FitzGibbon (Dublin) related his experiences with cardiac cases. Professor Sir Ewen Maclean (Cardiff) disagreed with Dr. Rist's pessimistic views regarding tuberculosis in pregnancy. Professor McIlroy (London) thought that Professor Kerr's conclusions as to the gravity of cardiac lesions were rather exaggerated. She did not approve of Caesarean section and sterilization of the patient. Dr. Mary Macnicol (Edinburgh) thought that the outlook in syphilis was good, whereas in gonorrhoea the reverse was the case. Dr. Mackenzie (Tain) described his experiences as a rural practitioner. Dr. Paramore (Rugby) advocated hysterectomy in cases where Caesarean section was necessary. Professor McKerron (Aberdeen), Dr. Lees (Edinburgh), and the President also took part in the discussion.

SECTION OF PATHOLOGY AND BACTERIOLOGY.

Wednesday, July 20th.

GROWTH IN ITS PATHOLOGICAL RELATIONS.

DR. ARCHIBALD LEITCH (London) discussed the reproductive powers of cells shown in physiological replacement, in repair, and in neoplasia, and maintained that the growth property in all was an inherent attribute differing only according to the restraint imposed on this power. He was inclined to regard this growth substance as some factor that could be transuded occasionally from the cells to act as a stimulant on other cells, and it was maintained at the expense of the other cell functions. The more specialized the cell the less growth power it could exhibit, and the more malignant the process of growth the less differentiated in function the cells became. Cells incapable of regeneration in adult life were incapable of neoplastic growth. The exceptional tumours that went against this general law were due to developmental defects, and he suggested that such growths actually started as tumours in embryonic life. Although the virus theory of cancer offered an easy solution of many puzzles, yet critical experiments undertaken by himself and others gave no support to the theories of Gye or of other upholders of the parasitic hypothesis. Professor Robert Muir (Glasgow) said that although in tissue cultures the growth of cells could be stimulated by chemical substances present in embryonic extract, it was doubtful if analogous cell stimulants occurred in nature; even these tissue culture stimulants were more in the nature of food substances than anything else. It was difficult to believe that in the ordinary processes of repair the regeneration was started by cell stimulants or arrested by their exhaustion. He held that any growth-promoting substance came from within the involved cells themselves, and it was peculiar that proliferation started in cells at some distance from the area of wound reaction. With regard to tumours he was prepared to accept the possibility of a special class of neoplasms due to a filterable agent, and believed that this class would be enlarged in the future. Two other groups must be admitted: (*a*) a class of tumours due to chronic irritation which required a long period for their development; and (*b*) tumours due to developmental defects characterized by early and rapid growth and by an extraordinary complexity of structure. Professor Shaw Dunn (Manchester) considered that though neoplasms might differ considerably from each other yet they had more in common than any of the processes of a reactive type. The striking units of neoplastic diseases suggested, if not a single cause, a similarity of causal factors. The great mass of tumours arose without any apparent cause, but knowledge of causative factors in others was increasing. The experimental production of cancer by special irritants suggested that processes of chronic irritation, not yet clearly defined, might be responsible for many tumours. The development of cancer in cirrhotic livers and in scars led to the belief that such tissue derangements rendered cells liable to neoplastic formation. Though some tumours might be rare, as Dr. Leitch had shown, yet they could not lightly be discarded on that account in considering the question of origination. The liability of simple tumours to become malignant was much greater than published cases would suggest, and the supervention of malignancy was not an entirely new phenomenon but an extension of the process in existence. He emphasized the factor of hereditary liability which entailed the admission of some extraneous agent in addition to a congenital innate property of cells. He could not accept the idea of anything in the nature of a micro-organism as playing a part in the production of neoplasia. Professor M. J. Stewart (Leeds) discussed the relation between rests and tumours, and held that such segregations were no more liable to neoplasia than normal tissues. Epithelial heterotopias of the intestinal tract betrayed no tendency to the development of cancer. He was prepared, however, to believe that segregations of cells within organs, not displaced organs, might possess a dormant power, and, passing through a resting stage, might later blossom out into malignancy. Professor E. H. Kettle (Cardiff) thought that the increasing knowledge of growth processes deepened the mystery and prevented a broad general view being taken of the whole question. He could not agree that hyperplasia, benign, and malignant tumours merged into one another. Growth and cell proliferation were not interchangeable terms, nor in tumour formations were we justified in regarding all tumours as due to the same etiological factors. Professor Miller (Kingston, Ontario) called attention to the frequent presence of multiple foci of new growth independent of each other. He emphasized the possible production of malignancy by hormones, citing in particular the development of chorion epithelioma. Professor Lorrain Smith (Edinburgh), President of the Section, remarked that in the process of growth in the skin a cell divided into two in the basal layer, one remaining there and the other developing and differentiating in other layers finally to result in scales. How was this determined, so that one was left and the other taken for differentiation? Was this already determined in the process of division? Similarly in the development of blood corpuscles from haematoblasts. The arrest of this was related to cancer growth, as, for example, in basal cell cancer.

SECTION OF THERAPEUTICS AND PHARMACOLOGY.

Wednesday, July 20th.

ADMINISTRATION AND USES OF OXYGEN.

PROFESSOR J. A. GUNN (Oxford), President of the Section, opened the first session of this Section with a few remarks, after which Dr. H. Whitridge Davies (Leeds) read a paper on oxygen therapy, using Barcroft's classification of the "anoxic," the "anaemic," and the "stagnant" types. In the anoxic type deficiency of the blood in oxygen was usually associated with some pulmonary lesion. The lack of oxygen in the anaemic type was due to shortage of haemoglobin in the blood, whereas in the stagnant type too little blood reached the tissues, interfering with their oxygen supply. Oxygen administration was chiefly of value in pneumonia, pulmonary oedema, acute bronchitis, and emphysema. Dr. Davies thought that the oxygen chamber method when properly used was valuable, though not altogether free from risk, such as fire. It was particularly useful when patients could not tolerate the usual mask, and when continuous inhalation was required. He critically reviewed some of the usual methods of administering oxygen, condemning the ordinary funnel method, approving the use of the nasal catheter, but preferring the procedure introduced by Haldane, which resulted in the saving of about 50 per

cent. of oxygen. He described in detail a form of apparatus devised by himself, and enumerated three criteria of successful oxygen administration—namely, the abolition of cyanosis, the relief of dyspnoea, the fall of the pulse rate. In the absence of Dr. W. T. Ritchie (Edinburgh) his paper was read by Dr. C. G. Lambie (Edinburgh). Dr. Ritchie thought that the chief value of oxygen administration was the relief of dyspnoea; too little oxygen was generally used in view of its rapid absorption. He emphasized the importance of continuous administration and of giving at least two litres of the gas each minute. He defined the conditions in which it was of no value, and added that in circulatory failure oxygen played only a small part, except in the later stages when pulmonary oedema was in evidence. Dr. R. Hilton (London) confined his remarks to the uses of oxygen in congestive heart failure and pneumothorax. He illustrated the uselessness of the ordinary funnel method, but approved the employment of the nasal catheter in some cases.

Professor J. A. Gunn (Oxford) in a paper on expectorants deplored the very small advance in this subject during the last fifty years. Hardly any experimental work had been performed, and present-day practice was mostly based on tradition. This was due to the difficulty of making exact measurements of the bronchial secretion. He compared the two varieties of classification of stimulants according to (1) their physiological effects and (2) their sedative or stimulant action. The second, although extensively used even in modern textbooks, was in his opinion bad. The physiological classification was more scientific; it included the groups: (1) reflex stimulation through gastric irritation; (2) central stimulation; (3) action on the secretory vagal ends; (4) stimulation of the gland during excretion.

SECTION OF DISEASES OF CHILDREN.

Wednesday, July 20th.

ACUTE PNEUMONIA IN EARLY CHILDHOOD.

THE President, Professor John Fraser, in his opening remarks, made sympathetic reference to the late Dr. John Thomson. Dr. Charles McNeil (Edinburgh) introduced the discussion by giving an analysis of 558 hospital cases of pneumonia observed personally by him during the past seven years. Half were in children under the age of 2, and in these the mortality was 30 per cent. In the age period 2 to 12 years the percentage of deaths was 5.7. The explanation of the disparity in mortality lay in the frequency of bronchopneumonia in infants. The difficulty of distinguishing clinically between the two types was admitted, and stress was laid on two signs—duration of fever and rapidity of resolution. In seeking for an explanation of the frequency of bronchopneumonia in early childhood it was desirable to recognize the importance of natural age constitution and the effects of bad environment and hygiene. Further bacteriological research was necessary. It was suggested that the nature of the pathological process would be emphasized by the substitution of the terms "alveolar" for "lobar" and "interstitial" for "broncho-" pneumonia. Dr. Agnes Macgregor (Edinburgh) referred to the incidence of the two types in 100 consecutive fatal cases. Of these, 81 were in children under 2 years of age, and 89 were examples of bronchopneumonia. In bronchopneumonia there was a progressive invasion of the lymphatic system and interstitial framework of the lung by the infective agent, which accounted for the slow resolution. Further effects of the lymphangitis were suppuration within the lungs, bronchiectasis, and fibrosis. Predisposing factors were of great significance; diminution of the incidence of bronchopneumonia might follow an attack upon them. Dr. L. Findlay (Glasgow) inclined to the view that all primary pneumonias in children under the age of 3 should be regarded as bronchopneumonic in type. In a recent pathological investigation of 65 of his fatal cases there was only one example—and that in a child of 5—of typical lobar pneumonia. Variation in the host rather than in the type of infecting agent was the more important from the etiological standpoint. Dr. J. H. Thursfield (London) reviewed the attempt to find a specific method of treatment, and gave details of a series of severe cases of primary pneumonia treated by means of a sensitized pneumococcal vaccine. The results were encouraging. Lieut.-Colonel W. Glen Liston (Edinburgh) referred to an investigation into the bacteriology of bronchopneumonia in children. Using a special medium, he obtained a growth of Pfeiffer's bacillus from the lungs and blood of the great majority of the cases. He held that this bacillus played a primary part in the breakdown of the defensive forces. Dr. N. Carmichael (Edinburgh) suggested that the bronchopneumonia of early life was the expression of the lobar pneumonia of later years. He referred to cerebral and abdominal types. Dr. C. P. Lapage (Manchester) pleaded for a clinical investigation in which the help of the general practitioner might be enlisted. Dr. Armand-Delille (Paris) spoke of the assistance to be obtained from fluoroscopic examination. Dr. H. C. Cameron (London) deprecated any tendency to regard the attempt to distinguish between the two great types of pneumonia in infancy as unprofitable. The presence of delirium was characteristic of the lobar form, as was the finding of dullness at an early stage. Dr. A. G. Newell (Harringay) strongly advocated vaccine therapy. Dr. C. W. Vining (Leeds) commended open-air treatment, continuous oxygen inhalation, and judicious feeding during the acute phase. Dr. F. M. Gardner-Medwin (St. Asaph) suggested sodium nucleinate intramuscularly as a routine procedure. Dr. S. P. Huggins (High Wycombe) gave his experience of vaccine treatment. Dr. Wilkie Scott (Nottingham) thought that a classification based upon either mortality or morbid anatomy gave a false impression of the incidence of the two types of pneumonia. Dr. Helen Mackay (London) discussed the preventive aspect. The President considered that immuno-transfusion had a distinct future.

SECTION OF MENTAL DISEASES.

Wednesday, July 20th.

CHRONIC SEPSIS AS A CAUSE OF MENTAL DISORDER.

AT the request of the President of the Section (Professor G. M. Robertson) Dr. Hamilton Marr took the chair at the first meeting of the Section. Dr. William Hunter (London) opened the discussion on chronic sepsis as a cause of mental disorder. He admitted that septic conditions were not the cause of all mental disturbances, but considered that there were clinical grounds for recognizing a definite "septic psychosis," and he described an illustrative case in which no improvement occurred over a period of two years until septic teeth were removed. He referred to the remarkable increase in the recovery rate which followed the treatment of the discoverable infective foci in Cotton's cases, and advocated the provision of adequate facilities in mental hospitals for treatment along the lines suggested by these results. Sir Berkeley Moynihan (Leeds) emphasized the influence of chronic sepsis on the production of lesions of the abdominal viscera, citing as an example "no cholelithiasis without antecedent infection." He had often removed foci of infection, such as the gall bladder in "functional psychoses," with the happiest results. Dr. Chalmers Watson (Edinburgh) believed that much could be learned from the study of the oral cavity and gastro-intestinal tract generally by bacteriological methods. Dr. Groves described a case of recurrent mental illness in a girl: after a very extensive campaign of detoxication including non-specific protein therapy she recovered mental health and became physically stronger than she had ever been previously. Dr. D. K. Henderson said that chronic sepsis had not been neglected in mental hospitals, but it was not permissible to speak of a "septic psychosis." The work of Kopeloff, Kirby, and Cheney was the best controlled, and did not support Cotton's contention that the majority of psychoses were largely the result of chronic sepsis. Dr. W. F. Menzies (Cheddleton) stated that most bacteria had two strains—a haemolytic and a neurotoxic. Dr. Watson-Williams quoted cases which showed a relation between focal infection and mental illness. Dr. W. A. Potts (Birmingham) believed that there was a definite "septic psychosis." Dr Hunter, in reply, said he considered that Kopeloff had not proved his point.

Friday, July 22nd.

REPORT OF THE LUNACY COMMISSION (ENGLAND).

Under the chairmanship of Dr. Hamilton Marr, Professor G. M. Robertson (Edinburgh) opened the discussion with a tribute to the thoroughness and efficiency with which the Royal Commission had done its work. It was a striking reply to newspaper propaganda that the Commission had not found a single case of improper detention. Nevertheless, the fear of improper detention had obsessed the draughtsmen of the Lunacy Act of 1890. Of the two questions, of medical treatment and legal detention, the latter in the past had occupied the foremost place and had hindered treatment. In Scotland it had been conclusively demonstrated that personal intervention by laymen in the process of commitment to a mental hospital was unnecessary. Patients had been divided into two classes for the purposes of the Commission: the voluntary and the involuntary. The measures advocated by the Commission for the second group were of debatable value. That the recommendation of only one doctor should be required in the provisional treatment order was a mistake. It was also creating a difficulty to make the application of the provisional treatment order depend upon prognosis—upon whether the patient would recover within a certain time. It would injure the patient's prospects of recovery to place him at once under a reception order, for that would be equivalent to giving a gloomy prognosis. The Scottish Schedule G was cast in much better shape than the formula suggested by the Commission. It was profoundly to be regretted that the Commission should advocate the personal intervention of a justice in the proceedings for a provisional treatment order. Direct judicial intervention was unnecessary, whether from the point of view of improper detention, or from the necessity for conforming to the canon of English law, that the liberty of the subject may not be infringed without the intervention of some judicial authority. Scottish experience confirmed this. The sheriff never saw the patient, but simply inspected the application and the medical certification. There had been no case of improper detention under these rules within the last seventy years. This happy state of affairs had been helped by the fact that provision was made in Scotland for appeal to two independent medical men; a similar provision would have avoided many of the Commission's difficulties. Finally, the justice should be replaced by the Board of Control.

Dr. E. Mapother (London) denied that there was any clear-cut distinction between the voluntary and the involuntary case. Where a voluntary case passed into a condition in which volition was impossible, the recommendation of the Commission would place him under a provisional order at the end of a month. A provisional order and full certification were virtually identical. The fact that under the provisional order a magistrate had to see the case within seven days would drive practitioners to the use of an urgency order. Dr. T. B. Hyslop (London) said that certification often led to the labelling as insanity what was fundamentally an endocrine or metabolic anomaly. It was well known that magistrates were often very unwilling to perform the duties imposed on them by the Lunacy Acts. He remembered one magistrate who, when asked to see a patient with a view to signing an order, said, "This is awful. I know nothing about it." (To the patient): "Madam, have you any delusions?" Dr. W. F. Menzies (Cheddleton) stated that the provisional order would involve three successive personal examinations of the patient by the judicial authority. The management committee of each mental hospital should be appointed *ad hoc* as the judicial authority. Dr. Risien Russell (London) said that two distinct issues were involved—doctors could get protection against an action for damages only if they were prepared to accept the interposition of a legal authority, and if they were prepared to give evidence on oath. The intervention of the law did not necessitate publicity. To have someone trained both in medicine and law as the judicial authority would make the matter too medical. There were three prime desiderata: there should always be two doctors concerned; the judicial authority should always see and examine the patient and also the doctors; the doctors should give their evidence on oath and be subjected to cross-examination like any other witnesses. Dr. Ross (Lochgilphead) referred to the simplicity of the procedure in parts of Switzerland. "Chaque loi pour les aliénés devient un loi contre les aliénés."

Earl Russell said that a great difficulty was constituted by the public suspicion of doctors regarding certification—a fact which legislators had to bear carefully in mind. To appoint the committee of a hospital as the judicial authority would simply fan this suspicion. While a formal court "case" must be avoided, the Commission had the strongest evidence of the desire of patients to state their views at an inquiry. To make a general practice of retaining as an involuntary patient a man admitted on a voluntary basis who had lost volition might prejudice the whole voluntary principle. Sir David Drummond said that Lord Russell had admirably expressed his (Sir David's) own views. Sir Frederick Willis said that the Government were very anxious to bring in new lunacy legislation. It was very pernicious that rate-aided patients could not at present obtain treatment till after they were certified. In Sir Frederick's opinion adequate safeguards were possible without a justice, but the public demanded his intervention. At present the justice was sometimes no safeguard at all. Further protection was necessary for doctors. It was a pity that doctors should give evidence against one another. No case of the wrongful detention of a pauper patient had come before the Commission, although only one certificate was required. Sir Arthur Rose (Chairman of the Board of Control in Scotland) hoped that progressive legislation would soon be enacted in England, as that would facilitate the passage of still more progressive legislation for Scotland. Dr. C. O. Hawthorne declared that the stigma lay in the certificate. Doctors must be protected. At present partnership agreements were being drawn up in which a provision was made that neither partner should ever sign a lunacy certificate. This represented a sentiment which must be respected in legislation. Doctors alone were competent to judge when there was a disorder and how it should be dealt with. When the State assumed authority it must also assume responsibility. The doctor should have the immunity conferred upon other witnesses. Dr. Hubert Bond recalled that when a committee was appointed in 1884 to inquire into the workings of the Lunacy Acts, the Earl of Shaftesbury felt this to be an attack on his administration of these Acts, and resigned the chairmanship of the Commissioners. To the Earl of Shaftesbury the intervention of a justice was anathema. It was doubtful whether, if Lord Shaftesbury had lived, such intervention would ever have been permitted to be incorporated in the Act of 1890. Dr. Briggs said that in Massachusetts over 95 per cent. of the patients committed were never seen by a magistrate; and in only one case had a physician been sued (unsuccessfully). The appearance of medical men on opposite sides of a case was now virtually avoided by referring the patient to two expert alienists, whose reports became available to both sides. Dr. Marr then declared the discussion closed owing to limitation of time.

SECTION OF NEUROLOGY.

Wednesday, July 20th.

THE TICS AND ALLIED CONDITIONS.

OPENING the first discussion, Dr. S. A. Kinnier Wilson (London) referred to the confusion that still existed as regards "involuntary movements." A host of ill-differentiated expressions bewildered the student, and the first duty of the clinician was to separate such classes of movement as appeared to have distinctive characters. Dr. Wilson dealt in turn with the different definitions of a tic that had from time to time been advanced, such as Cruchet's, and Meige and Feindel's. Passing to the symptomatology, he especially stressed the abnormal mental state characterized by volitional instability, and in not a few instances by a degree of mental infantilism. The localization and varieties of tics were only limited by the number of functional acts of which they might be the caricature, and that number was legion. Various facial tics were perhaps the commonest. In tic phenomena there

was a psychical predisposition. In some, possibly the majority of cases, the tic made its appearance as the expression of an unconscious desire, or of a desire that was often but half hidden from consciousness. Tics rarely accompanied hysteria, nor were they manifestations of that psychoneurosis. Movements of defence against some source of irritation sufficed in some instances to set in motion the processes leading to a tic. Prognosis depended upon the degree of volitional impairment of the patient. The older the patient and his tics, the less favourable were the chances of relief. Treatment lay in adopting general hygienic measures and a disciplinary regime; in some cases certain sedative drugs and hypnotic or other form of suggestion were of value. Probably the best form of treatment was that known to the French school for the better part of a century—re-education or muscular drill. Professor Guillain (Paris), after paying a graceful compliment to British neurology, discussed the etiology and pathology of spasmodic torticollis. Dr. A. F. Hurst (Ascot) dealt with the visceral tics, including aerophagy, certain types of cough, particularly those met with in association with asthma—sniffing, etc. Professor Cruchet (Bordeaux) spoke on certain symptoms in connexion with "tic" and associated mental states. He also gave an admirable exposition of the different forms of treatment. Dr. B. Sachs (Boston), while agreeing that tics had a manifold etiology, regarded the majority as of psychogenic origin. They were invariably associated with a peculiar mental instability, of which the tic might be the only symptom. Rigorous discipline was necessary in treatment. Dr. A. Stanley Barnes (Birmingham) thought tics were commoner in childhood and adolescence. The temperament of the individual was the main determining factor, but mental stress might act as an exciting cause. Dr. Grainger Stewart (London) doubted if aerophagy was really a tic; he was inclined to regard it as an hysterical state. Benefit to some ticqueurs sometimes resulted from reviving a forgotten memory under hypnosis; in other cases co-ordinating exercises were of value. Dr. R. G. Gordon (Bath) considered that many tics might have a physical basis, such as muscular rheumatism of the trapezius causing torticollis; it was necessary, therefore, to exclude all physical factors by careful examination. Dr. P. Cloake (Birmingham) raised the question of the different physiological levels of the nervous system at which tics and other involuntary movements might occur. Dr. Royle referred to cervical arthritis as a cause of torticollis, and Dr. Brock also spoke.

SECTION OF OPHTHALMOLOGY.

Wednesday, July 20th.

Optic Neuritis.

THE proceedings of the first day were occupied by a discussion on optic neuritis, which was opened by Dr. J. V. Paterson (Edinburgh), the President, Dr. A. H. H. Sinclair, being in the chair. After a reference to the confused nomenclature, Dr. Paterson stated that classification should rest on the investigation of cases as a whole and not merely on disc appearances. Cases due to raised intracranial pressure were recognizable by the amount of swelling of the disc and the absence of visual disturbance in the early stages. In their diagnosis he considered the use of the Gullstrand ophthalmoscope, study of *x* rays of the skull and the visual fields, and the co-operation of a neurologist essential. Palliative trephining should be performed early and by a specially trained surgeon. The second group of cases was due to inflammation in the nerve or sheath. Disc changes might be present, but considerable failure of vision was almost invariable, and recovery the rule. Some of these cases were due to disseminated sclerosis, but in many no cause was ascertainable. Cases of nasal origin did occur, but he did not believe that it had yet been proved that the ordinary case of retrobulbar neuritis was due to spread of infection from the nose. He mentioned optic neuritis following head injuries, in myelitis, and the rare sudden acute cases with extreme loss of vision. Dr. H. Rönne (Copenhagen), in a long paper, discussed the confusion with regard to the nomenclature of the various types of neuritis and the difficulty of ophthalmoscopic differentiation. He reviewed generally the three clinical types, papillary oedema, neuritis optica, and retrobulbar neuritis, and described in detail the pathological anatomy of retrobulbar neuritis, the most striking features of which were an irregular plaque formation in the substance of the nerve and the destruction of the medullary sheaths before the axis cylinders. He gave an account of the condition of choked disc with sudden initial blindness and the affections of the optic nerve in myelitis, etc., entering into the pathology and the changes in the fields of vision. Dr. A. J. Ballantyne (Glasgow) dealt with cases in which the oculist could give help in diagnosis to the general physician or surgeon. In this connexion optic neuritis presented itself mainly under two aspects: (1) as the papilloedema associated with such conditions as intracranial tumour and meningitis, and (2) in renal disease. He described a case of unilateral choked disc due to tumour; the optic neuritis in cerebro-spinal meningitis (he had found 5 instances in 61 cases in the epidemic of 1907); and cases due to injury, loss of blood, and the toxaemia of pregnancy. He also discussed the relation of retrobulbar neuritis to nasal disease. He was inclined to be conservative as regards operation. The discussion was continued by Professor J. van der Hoeve (Leyden), Drs. H. M. Traquair (Edinburgh), Young, and de Schweinitz (Philadelphia), Professor W. H. Wilmer (Baltimore), Dr. Wilder, Sir William Lister, Sir J. H. Parsons, and Sir George Berry.

Development and Diseases of the Retina.

The second day was occupied by short papers. In a communication on the comparative development of the retina Dr. Ida Mann (London) discussed the differentiation of the retinal layers and stated that there was a definite sequence of events which held good in all vertebrates so far examined. She described the formation of the amacrine cells and showed drawings and slides of the development of the retina in cyclostomes, fish, amphibians, reptiles, birds, and mammals. Her paper was discussed by Dr. H. Rönne (Copenhagen) and Professor J. van der Hoeve (Leyden). Sir William Lister (London) in a paper on the treatment of detachment of the retina concluded that in retinitis striata, diffuse fibrous degeneration of the vitreous, and in cases with a hole, treatment was practically useless. Fibrous bands might be divided, and the associated retinitis or choroiditis might be treated. All cases in which the mechanism of the detachment was not determinable should be treated by rest, measures calculated to promote absorption of the interretinal fluid, such as subconjunctival injections and hot-air baths, and, if no improvement occurred, by scleral puncture. Dr. W. Clark Souter (Aberdeen) discussed spontaneous reattachment of the retina and described six cases, in three of which choroido-retinal atrophic changes had followed and in two retinitis striata, while one showed an apparently normal fundus. He considered the pathological findings in published cases which had come to the microscope. These papers were discussed by Drs. Kerry, Rönne, Rowan, Tudor Thomas, Sir Arnold Lawson, and Mr. Inglis Pollock.

Miscellaneous Papers.

Sir Arnold Lawson (London) spoke on the value of antiseptics, describing in detail his pre-operative and theatre technique. He considered it impossible to sterilize the conjunctiva. The most reliable danger sign was the presence of secretion. He valued flavine highly as a prophylactic, but did not find it of service when infection had developed. His paper was discussed by Mr. Bishop Harman. Mr. Holt Diggle (Manchester) described an investigation into the nasal origin of lacrymal obstruction and its treatment by intranasal means. He found the presence of nasal abnormalities and disease rare. The rectification of nasal lesions, with the exception of suppurative ethmoiditis, did not relieve the obstruction, and patients rarely gave a history of nasal trouble. There was certainly a nasal cause for lacrymal obstruction, but its pathology and incidence needed further investigation. In a paper on tobacco amblyopia in Edinburgh and district Dr. H. M. Traquair (Edinburgh) gave figures showing that in the last thirteen years the average percentage in

those attending the eye departments of the Royal Infirmary was 1. The monthly incidence showed a peak in spring and early summer with a pronounced fall in winter. Graphs from these figures were compared with graphs from statistics of arrests for drunkenness due to alcohol and methylated spirit. Their dissimilarity indicated the inference that the amblyopia must be regarded as entirely due to tobacco. The paper was discussed by Mr. Bishop Harman, Drs. Young and de Schweinitz (Philadelphia). Time did not permit the reading of the President's paper on intracapsular extraction of cataract, but he demonstrated his method of operating in the theatre on four cases.

SECTION OF LARYNGOLOGY AND OTOLOGY.

Wednesday, July 20th.

IMMOBILITY OF THE VOCAL CORDS.

DR. BROWN KELLY (Glasgow) illustrated the anatomical factors underlying paralysis of the vocal cords with lantern slides showing the various situations in which the laryngeal nerves might be pressed upon or suffer from trauma, especially in the base of the brain, and in the neck and chest. He referred to the various syndromes of Tapia, Vernet, and Hughlings Jackson, showing by means of diagrams and sections how the various associated lesions were brought about. He referred to the lesions of the laryngeal nerves due to cardiac affections, mentioning a curious case of injury to the nerve by traction over the ligamentum arteriosum. Mr. H. Tilley (London) described the clinical and mechanical aspects of paralysis of the vocal cords, based on the investigation of 23 cases. In past times a diagnosis of aneurysm or other fatal disease might have been made in such cases, but many of these patients had been known to recover. In one case seen twenty years previously the cords were paralysed, requiring urgent tracheotomy, and the patient was still alive and well. Mr. Tilley defined some of the causes of paralysis of the vocal cords, drawing attention to inflammatory factors in the fixation of the crico-arytenoid joint, and asked for an expression of opinion from the meeting as to the occurrence of this in the left cord. Sir StClair Thomson (London) said that there were many stages of impaired mobility before complete immobility was reached; he cited cases which he had seen in Midhurst Sanatorium over a period of ten years. Out of 500 cases 10 showed no tubercle, but one or other cord was immobile; these might have been due to thickened pleura or to gland pressure. Six out of 10 patients recovered, but the other 4 had still a fixed cord. Professor F. R. Nager (Zürich) referred to cases of paralysis of the cords due to goitre, and said that a benign goitre did not affect the cords. If in goitre the cords were affected malignancy was present, except when benign goitre suddenly enlarged with exercise; the involvement was then temporary only. As regards the surgery of goitre, 7 per cent. of cases had paralysis of the cord, but this palsy did not always recover. Professor Nager drew attention to cases of paralysis due to aneurysm of the innominate artery. Sir James Dundas-Grant related a case of bilateral abductor paralysis which remained unexplained until chronic rheumatoid arthritis developed. He also described a case which cleared up after bronchoscopy. Dr. J. S. Fraser (Edinburgh) contributed a statistical analysis, made by Dr. Lambert of Manchester, of 181 cases of paralysis of the vocal cords, and gave an interesting account of the various causations of the paralysis.

SECTION OF PREVENTIVE MEDICINE.

Wednesday, July 20th.

UNIFICATION OF PUBLIC HEALTH ADMINISTRATION.

PROFESSOR P. S. LELEAN, President of the Section, took the chair at the first meeting, and Dr. A. S. M. Macgregor (Glasgow) opened a discussion on the question whether all public health administration, municipal, school, factory, etc., should be concentrated under a single department and the immediate control in each executive area be vested in a single individual. The administration of the public health services of the country was, he said, admittedly defective, and the confusion was added to by the mass of increased responsibility thrown upon local authorities by recent legislation. In the larger districts the new measures necessary had been taken, but in smaller areas this had been impossible. Efficiency was proportional to the size of the unit. Professor E. L. Collis (Cardiff) dealt with the question from the point of view of the factory medical service, the administration of which by the municipalities he considered quite impracticable. Hitherto the medical service had been imposed upon industry by the State, and there had not been the development there might have been under better conditions. Improvements must originate from the owners with the assistance of the State; factories must provide their own medical service, as they did their engineering service. Professor F. E. Wynne (Sheffield) thought factory medical service and the port sanitary service might be excluded from a scheme of unification which was otherwise most desirable. The proposal was only a reversion to the recommendation of the Royal Commission of 1869. It would lead to a reduction in the number of inspectors, and accordingly to economy of effort and money. It would make records of individuals continuous, and therefore of some value. It was most important that junior members of the public health service should have an opportunity of engaging in every branch of the work. A memorandum sent by Professor E. W. Hope (Liverpool) was read in his absence by the secretary, Dr. W. T. Benson. Emphasis was laid on the necessity of uniting the health activities of the various Government departments, and on remembering the claim of the Poor Law authorities, who had done so much in the provision of hospitals, and were still charged with the administration of vaccination. It seemed obvious that administrative control should be vested in a single committee with its own expert advisers. There had already been amalgamation of authorities in several cases in the London area. Dr. J. H. Meikle (Edinburgh) thought that united action would be secured only by compromise. In promoting big schemes as much might be lost as was gained. In Edinburgh co-operation and exchange of information between the public health authority and the school medical service had hitherto solved all difficulties. Dr. F. Dittmar (Scottish Board of Health) said the time had come when all medical work, both in connexion with infectious disease and general disease, should be undertaken by the local authority. This had recently been effected in Aberdeen, where the City Council had taken over the Poor Law hospital service. Dr. Kay Menzies (London County Council) described the organization of public services in the London area, which worked well as far as results were concerned, though it involved overlapping, friction, undue correspondence, and extravagance. The difficulty was to find the ideal unit, and conditions varied so much that each area should be left to work out its own scheme. Dr. W. F. Dearden (Manchester) said factory administration concerned the factory population, not the whole community, and could not be satisfactorily dealt with by the municipality. Dr. J. Middleton Martin mentioned several instances of the confusion which arose as between counties and county boroughs. He believed in the fundamental necessity of having one authority for all health purposes. Dr. Kinloch (M.O.H., Aberdeen) explained that in that city the Poor Law hospitals had been voluntarily handed over, without charge, by the parish councils to the city council. He did not agree that the factories should be excluded from any schemes of amalgamation. The sanitary inspector should be responsible for factory hygiene, and experts in environmental hygiene might be appointed. Dr. H. Scurfield (Sheffield) gave instances of partial co-ordination in Gloucester, Essex, Cardiff, and Eccles. Dr. Beadles, speaking as a member of the Poor Law Committee of the Association, pointed out that unification was already the policy of the Association, but such unification must start at the centre. Dr. LATHAM (London) urged the necessity of giving junior members of the service a training that would qualify them to take the position of head of a combined department.

SECTION OF PHYSIOLOGY AND BIOCHEMISTRY.

Thursday, July 21st.

STRUCTURE AND FUNCTION OF THE SPLEEN.

THE morning discussion of this Section was opened by Professor Tait, who said that the circulatory system was everywhere lined with endothelium, except in the spleen, liver, and the bone marrow, in which it was defective or absent. When foreign particles or micro-organisms were introduced into the blood stream they rapidly disappeared from the circulation, finding a resting place in these three localities; their disappearance was due to their ingestion in the spleen, liver, and bone marrow by the special phagocytic cells which here lined the blood channels. The curious circulatory arrangements of the spleen and its steady persistance throughout the vertebrate group indicated some special function. The splenic arteries ramified into fine non-anastomosing penicillar vessels, each of which terminated in a small cluster of ellipsoids, which were phagocytic organs capturing foreign particles and effete blood corpuscles, and here the arterial endothelium came to an end. This region of the spleen was active in altering the corpuscular content of the blood. Blood in contact with the splenic reticulum was not induced to coagulate. The only other tissue in which this obtained was endothelium. As contact of the blood with ordinary connective tissue induced rapid coagulation, Professor Tait termed reticulum and endothelium haemothigmic, implying that these tissues might freely touch blood, whereas the other tissues of the body were anaemothigmic, and might not touch blood. Examination of the splenic architecture showed that all its anaemothigmic tissues—namely, its capsule and trabeculae, veins, arteries, and Malpighian corpuscles—were screened from contact with the blood by means of a casing of reticulum. These last facts could be well demonstratd by injecting indian ink backwards through the splenic vein. The ink painted all the reticulum of the parenchyma, leaving the anaemothigmic structures unpainted. Professor J. Barcroft (Cambridge) reviewed the relation between the nervous system and the vascular function of the spleen, and demonstrated the effects of various stimuli upon the form and size of the organ. Professor P. T. Herring (St. Andrews) pointed out the relation of the spleen to the lymph and haemolymph glands, and suggested the importance of the lymphoid tissue present in the spleen. Sir Humphry Rolleston (Cambridge) asked for information about the factors controlling the blood supply of the organ, and mentioned the rarity of tumour formation. Dr. H. C. Hou (Pekin) reported experiments in which the spleen was divided into two sections—(*a*) normal, and (*b*) denervated. He agreed that exercise diminished the size of the spleen even in the denervated portion, and suggested that the effect was due to adrenaline. Sir Edward Sharpey-Schafer (Edinburgh) drew attention to experiments which proved that the spleen was the most sensitive organ to adrenaline. Sir Berkeley Moynihan (Leeds) dealt with some effects of the removal of the spleen, and asked for greater co-operation of the physiologist with the clinician. Sir Almroth Wright, Dr. Hackett, Dr. Duncan Scott, and Professor Murray Lyon also spoke.

Following this discussion Professor P. T. Herring (St. Andrews) read a paper on the comparative histology of the pineal gland. This was followed by a joint paper by Professor J. A. MacWilliam (Aberdeen) and Professor G. Spencer Melvin (Cambridge) on optimal rhythm in the mammalian heart, and the action of the cardiac nerves. A paper by Dr. C. Reid (Aberdeen) on the mechanism of voluntary muscle fatigue was read. Experiments were described, and it was suggested that the fatigue had a central origin due to impulses passing up the afferent nerve. Professor D. Murray Lyon and Dr. W. Robson (Edinburgh) contributed a joint paper on cystinuria.

INTERNAL SECRETIONS AND SEX CHARACTERS.

Dr. F. A. E. Crew (Edinburgh), opening the afternoon discussion, emphasized the physiological activity of the gonads as a condition of the normal development and maintenance of such of the sex-dimorphic characters as are secondary gonads. He said that the criterion of a secondary gonadic character was that it reacted to the physiological activity of the gonad in a particularly definite way. It was established that the gonadic influence punctuated the growth of the long bones, thereby affecting the general proportions of the body, that it influenced the development and functioning of the central nervous system, affected the processes of general metabolism, and exercised a strong and definite influence on certain structures and functions which constituted the commonly recognized sex-dimorphic characters. The development and maintenance of many morphological, epiological, and psychical characters were dependent upon the integrity and functional activity of the gonads. He said that it was possible to feminize a male by castration, and subsequent implantation of ovarian tissue. The latent homologous sex characters, such as the mammary glands, were stimulated into activity, and the heterologous—for example, the penis, prostate, and seminal vesicles—remained undeveloped or became diminished in size and complexity. Similarly it was possible to masculinize a female by ovarectomy and subsequent implantation of testis. He thought it clear that the ovarian and testicular hormones were sex specific, acting only on those structures with which each was normally associated. An artificial hermaphrodite could be produced by combining in the same body both kinds of gonadic tissue. He thus concluded that in the mammal the most distinctive sex-dimorphic characters were the secondary gonadic, and that for the development and maintenance of these the presence of functional gonadic tissue was necessary. Professor E. E. Glynn (Liverpool) considered the influence of suprarenal cortical tumours on the ovary (inhibiting menstruation) and on the secondary sex characters (producing virilism). He said that hypernephroma did not produce sexual precocity in either boys or girls; the precocity involved only secondary sex characters. There was no evidence that suprarenal hypernephroma in males produced feminization. Dr. A. S. Parkes (London), Professor P. T. Herring (St. Andrews), Dr. W. P. Kennedy (Edinburgh), and Dr. L. C. Dunn (Storrs, Connecticut) also took part in the discussion.

SECTIONS OF PATHOLOGY AND BACTERIOLOGY AND COMPARATIVE MEDICINE.

Thursday, July 21st.

IMMUNITY.

AT a joint meeting of the Sections of Pathology and Bacteriology and of Comparative Medicine, presided over by Professor T. J. Mackie (Edinburgh) a discussion on immunity was opened by Dr. R. A. O'Brien, who reviewed the recent advances in immunity from the point of view of practice. He was followed by Professor C. H. Browning (Glasgow), who considered the advances in the theoretical conceptions of immunity, with special reference to antigen-antibody reactions, the part played by immunity phenomena in chemotherapeutic action, and Ehrlich's receptor hypothesis. Professor Robert Muir (Glasgow) expressed the opinion that the specific relation of antigen to antibody was the essential point, and that it seemed to be more a chemical than a physical phenomenon. The names of varieties of antisubstances should not be considered as of "definite" kinds—they were rather "non-uniform" bodies. Antigen function seemed to depend on extremely minute peripheral differences, and the dissociation of antigen and antibody was extremely important. This latter consideration might account for the greater effect of a haemolytic antibody on red blood cells *in vivo* than *in vitro*. Professor Ogilvie (Philadelphia) discussed the relation of sensitization to immunity, and said that both in anaphylactic and local reactions it seemed to be unimportant whether antigen or antibody was injected first. Colonel W. F. Harvey presented a report of his work in India, showing that single doses of a vaccine produced less immunity than several; that some immunity was apparent within a week; that full immunity was reached within three weeks; that its duration was shorter than was generally believed; and that for re-inoculation doses smaller than even the smallest required originally might be used. He suggested that future research might show that an animal

once immunized was in a sense always immunized. Professor Matheson discussed the salient points of immunology as applied to veterinary practice. Dr. H. D. Wright (London) said that the classical view of antibody activity—direct or indirect—was generally acceptable in toxin-producing organisms, but in other cases, such as pneumococcal infection, immunity might well be cellular. An important question was how highly immunized animals became infected. Many of the septicaemias might be largely accidental and due to the breakdown of a focal infection. Dr. W. H. Andrews said that veterinary pathology differed from human in having an essential economic outlook. Professor T. J. Mackie (Edinburgh) said that antibodies were only the manifestations of the reaction to foreign proteins, and "natural immunity" could seldom be attributed to their presence. Antibody research had drawn immunology into the domain of colloidal and physical chemistry, and until this line was stripped of its importance no great advances would be made into "resistance." Immunity might well depend on sessile rather than on humoral agents, and the further study of tissue antagonism to bacterial agents and their products should prove fruitful.

SECTION OF DERMATOLOGY.

Thursday, July 21st.

ULTRA-VIOLET RADIATION IN DERMATOLOGY.

DR. S. E. DORE (London), opening a discussion on the uses and limitations of ultra-violet radiation in dermatology, doubted whether many cases of lupus were cured by light treatment alone; surgical measures and selective caustics were still necessary. It was, no doubt, a valuable stimulant of the growth of hair in alopecia areata, but by no means a specific. In psoriasis the results were irregular; benefit often resulted, but by no means invariably, and relapses were frequent. In acne suppuration could be controlled to some extent, but better results were obtained by *x* rays. Cases of impetigo and staphylococcal infections, also of chronic septic and tuberculous ulcers, resistant to ordinary measures, were benefited by light. The combined local and general use of light therapy gave much better results than local treatment by light alone. Factors in its action might be activation of cholesterol in the skin and increase of haemoglobin, leucocytes, and of the bactericidal power of the blood. The psychological effect of the treatment should not be forgotten. He did not expect any benefit from the provision of ultra-violet-passing glass for dwellings in smoke-laden cities, as the quantity of ultra-violet radiations which penetrated the atmosphere was extremely small. The cooling power of the air, obvious in Edinburgh, was also a factor of importance in raising the rate of basal metabolism. Dr. F. Gardiner (Edinburgh) said that too much stress could not be laid on the psychological side of the treatment. They had treated at the Royal Infirmary 171 cases of tuberculosis of the skin in the light department since 1924, of which 27 had been declared provisionally cured, and 65 improved; the remainder were still under treatment. Tuberculides almost all did well, so did lupus erythematosus and those diseases of the skin associated with anaemia and debility. He was disappointed with the results in psoriasis and varicose ulcers. The radiations acted partly on the general system, partly as a stimulant to certain areas, and partly by reduction of pustulation. Dr. O'Donovan (London) described the origin of the light department at the London Hospital, where since May 1st, 1900, 2,800 cases of lupus had been treated. He laid great stress on the necessity of continual and continuous treatment and strict supervision of the patient's life. He thought that every type of lupus was curable except where there was lymphatic obstruction of the part affected. Up to the present there was no evidence that carcinoma ever developed on the supple scar left after light treatment. Psoriasis was very seldom benefited, but prurigo, multiple subcutaneous abscesses in children, and septic complications of wounds and fractures did well.

Dr. J. G. Tomkinson (Glasgow) testified to the value of ultra-violet radiations in lupus and cutaneous tuberculosis.

Dr. Gilchrist (Baltimore) mentioned the measurement of the dosage of ultra-violet light by means of lithopane, and attempts to desensitize to light by means of small doses. Diathermy was the best treatment of lupus. Sir Norman Walker (Edinburgh) had cured psoriasis in many cases. Dr. H. MacCormac (London) welcomed Dr. Dore's moderate claims for light therapy. Dr. W. Mitchell (Bradford) preferred diathermy to any other treatment for lupus. Dr. A. C. Roxburgh (London) reminded the Section of the use of ultra-violet light with Wood's glass as a method of diagnosing ringworm of the scalp by causing fluorescence of infected hairs.

The discussion was continued by Dr. R. Aitken (Edinburgh), Dr. Haldin-Davis (London), Dr. F. D. Hewitt (London), Dr. W. K. Russell (Newcastle), Dr. W. H. Brown (Glasgow), Sir R. Bolam (Newcastle), Dr. Christina Barrowman (Newcastle), and the President.

MISCELLANEOUS PAPERS.

Dr. H. C. Semon (London) then read a paper on the value of krysolgan in the treatment of lupus erythematosus. In a short series of cases he had obtained 22 per cent. cures. The paper was discussed by Drs. Gilchrist, O'Donovan, Haldin-Davis, Roxburgh, Russell, and the President. Several speakers thought the drug was of value.

Dr. Dowling (London) concluded the morning with a paper on the thallium acetate treatment of ringworm of the scalp. He had had ninety cases, of which seventy-three had been successful. Drs. Roxburgh and Tomkinson also spoke on the subject.

SECTION OF TROPICAL DISEASES.

Wednesday, July 20th.

AMOEBIC DYSENTERY.

DR. ANDREW BALFOUR, President of the Section, recalled that on the last occasion on which the Association met in Edinburgh Sir Patrick Manson announced Sir Ronald Ross's discovery of the mosquito-man cycle of malaria transmission. Dr. P. H. Manson-Bahr (London) opened the discussion on amoebic dysentery by outlining methods of treatment in the past and reviewing modern methods. In his hands a combination of emetine bismuth iodide by the mouth and yatren by the rectum had proved the most satisfactory treatment of the disease. By means of the epidiascope he demonstrated a series of water-colour paintings illustrating the sigmoidoscopic appearances of this disease. Dr. J. Gordon Thomson (London) indicated how, by means of samples obtained by sigmoidoscopy, the laboratory worker and clinician could assist one another. Professor C. A. Kofoid (California) described an amoeba, parasitic in man, which he believed to be distinct from *Entamoeba histolytica*. He showed lantern slides illustrating the distinctive features. Dr. Waters (Calcutta) referred to the treatment of dysentery by stovarsol, and Dr. Manson-Bahr briefly replied.

PROBLEMS OF MALARIA PROPHYLAXIS.

The discussion on the prophylaxis of malaria was opened by Lieut.-Colonel S. P. James (London), who based his remarks on the recommendations of the Malaria Commission of the League of Nations, which were specially directed towards malaria control in Europe, in places where only limited expenditure was possible. Colonel E. D. W. Greig (Edinburgh) described his experience with eighteen cases of intentionally induced malaria, and showed lantern slides illustrating the results of infection. Dr. L. W. Hackett (Rome) gave an account of the mosquito destruction work of the International Health Board in Italy, where Paris green had entirely displaced oil as a larvicidal agent. He described the way in which it was applied. Dr. E. Martini (Hamburg) referred to his study of malaria in South Russia and Angora, and emphasized his belief that attacks of "spring malaria" were really relapses of infection contracted the autumn before. Dr. P. H. Manson-Bahr described the mode of employment of plasmochin in treatment, and referred to its possibilities as a preventive. Dr. Drbohlar (Prague) gave an account of the conditions under which malaria prevailed in Czechoslovakia, laying stress on its association with bad

housing and a low standard of life. Colonel S. P. James replied that his experimental work confirmed Dr. Martini's view of the significance of "spring malaria."

SECTION OF FORENSIC MEDICINE.

Thursday, July 21st.

Alcohol and the Motorist.

A discussion on alcohol and the motorist, which has been very generally reported in the newspapers, was opened by Dr. Godfrey Carter (Sheffield), who said that the word "drunk" was unfortunate, and gave rise to much legal wrangling. The association of congested conjunctivae with quickness of the pulse and smell of alcohol in the breath was very suggestive. In his opinion any person with demonstrable signs of alcoholic indulgence was unfit to drive a car, and therefore "drunk" within the meaning of the Act. He outlined recent work in Sheffield on the estimation of alcohol in the urine, as described in this JOURNAL last year (vol. i, p. 463). Thirty drops of urine was a sufficient amount to enable the quantity present to be estimated. Dr. E. Bogen (U.S.A.) said that the amount of alcohol in the breath could be ascertained, and bore a constant relation to the amount of alcohol in the blood. Dr. Morrison (Birmingham) said that renal disease might prove a fallacy in urine examinations; in his opinion the important factor in estimating the degree of drunkenness was the general appearance of the accused. Dr. Allison (Glasgow) thought the accused should always be warned as to the object of the examination. Lord Russell discussed the question from the legal point of view. Professor MacFall (Liverpool) laid stress on inco-ordination of muscular movement as a test.

Teaching of Forensic Medicine.

A discussion on the teaching of forensic medicine was opened by Professor Glaister, who defined the lines on which the student should be taught. Any medical practitioner might find himself called to give skilled evidence in a court of law to assist the court in arriving at a decision. Much of the teaching of forensic medicine depended on the practical experience of the teacher; students derived much benefit from attending a court of law during a trial, as it enabled them to appreciate the surroundings and the conduct of witnesses. Professor MacFall (Liverpool) thought the course should come as late as possible in the curriculum, and that there should be provision for post-graduate teaching. Professor Sydney Smith (Cairo) described the procedure in Egypt, and expressed the opinion that great economy would result from a State medico-legal service.

SECTION OF TUBERCULOSIS.

Friday, July 22nd.

Radiological Diagnosis of Intrathoracic Tuberculosis.

Opening a discussion on radiology and the diagnosis of intrathoracic tuberculosis from the point of view of the specialist and the practitioner, Mr. H. Morriston Davies (N. Wales) emphasized the importance of radiology as an adjunct to diagnosis in its differential aspects and its relation to the true position and anatomical extent of the lesion. He pleaded for the greater employment of *x* rays in the early and doubtful case and in the following up of the so-called "hilum case." Dr. E. Rist (Paris) said that the real function of radiology was to "check, correct, and control." He hoped that in the near future radiological examination would not be considered as outside the term "clinical examination." Dr. J. Logan Stewart (Manchester) said he had found *x* rays most valuable in the investigation of contacts. Dr. J. M. Woodburn Morison (Edinburgh) drew attention to the danger of too much reliance on pictures, and pleaded for a combination of radiologist and clinician. The discussion was continued by Dr. C. P. Lapage (Manchester) and Dr. Parsons (Ceylon).

Pathology of the Tuberculosis of Childhood.

Professor E. L. Opie (Washington), who opened this discussion, said that just as examinations of persons dead of causes other than tuberculosis often gave important information about tubercle, excised lungs examined by film and compared with *post-mortem* findings and the radiograms taken while the patient was alive were now giving the clue to the best use of *x* rays as an aid in diagnosis of the disease in early life. He showed the relation of hilar glands and peripheral primary lesions, and pleaded for the use in contacts of the tuberculin test and efficient radiography. Dr. R. G. Canti (London) followed, and showed many interesting diagrams of the relation of glandular infection to primary foci. Dr. Armand-Delille (Paris) said that the best method of interpretation of *x* rays was to compare lung sections from the organ, hardened in a position as near as possible to that assumed in life during the radiological examination, with the plates taken at intervals during the patient's illness. He showed many sections and the corresponding *x*-ray findings.

Non-pulmonary Tuberculosis.

The interrelation of the physician and surgeon in regard to non-pulmonary tuberculosis was considered by Dr. D. A. Powell (Cardiff), who said that true co-operation lay in each taking his own responsibility—the physician the diagnosis and the choice of the surgeon—the latter determining the technique. The physician could still learn more from the surgeon on the methods of immobilization. True co-operation would mean that diagnosis would be followed by action, to the more immediate and lasting benefit of the patient. Professor J. Fraser (Edinburgh) thought that the present-day treatment of tuberculosis might be summed up in excision, rest, and increased general resistance, but that hope for the future lay in obtaining the assistance of the public by education and co-operation in after-treatment rather than in the combination in one of the physician and surgeon; the expert in each branch ought to come together. Dr. G. H. Girdlestone (Oxford) supported this view, and said that, while a combination might be possible, it was very difficult in adult cases where highly trained specialism was a necessity. He believed it almost impossible to develop a surgical hospital in a sanatorium.

Demonstrations of sections and *x* rays were given in the afternoon, and were followed by an excursion to Southfields Sanatorium.

SECTION OF VENEREAL DISEASES.

Friday, July 22nd.

The Cerebro-spinal Fluid in Syphilis.

Mr. C. H. Mills (London), opening this discussion, emphasized the importance of routine examination of the cerebro-spinal fluid, both before, during, and after treatment. Examination of the cerebro-spinal fluid about six weeks after the cessation of the initial course of treatment should prevent entirely the subsequent development of meningeal relapses and their sequels. In every case treated *ab initio* the cerebro-spinal fluid and blood should be tested at the end of the first, second, third, and fifth years. All patients with a persistent positive blood Wassermann reaction should have the cerebro-spinal fluid examined, no matter at what stage of the infection the patient first came under observation. If the cerebro-spinal fluid was found to be affected in a syphilitic case the patient must have treatment and periodic re-examinations for the rest of life. No patient with a history of syphilis should be allowed to marry without an examination of the cerebro-spinal fluid. Dr. G. Riddoch (London) asked what value could be placed upon a positive result obtained soon after the initial six weeks' course. Did it mean that the patient was a paretic? In any case such a patient should be treated for life. He did not think that such a patient in whom the cerebro-spinal fluid became subsequently negative was safe even after five years; tabes might be developed without any change in the cerebro-spinal fluid. Lumbar puncture might be followed by a most distressing headache which would deter the patient from a second examination; hence all possible precautions should be used to keep the operation painless and to avoid unpleasant sequels. Dr. D. K. Henderson (Glasgow) said that the early diagnosis of parenchymatous neuro-syphilis was

impossible, since the pathological changes were always far more advanced than the clinical signs. No patient who had had general paralysis, even if apparently cured, should be allowed to take a position of responsibility. Dr. J. G. Greenfield (London) described various tests for the cerebro-spinal fluid. He said that a patient in whom a positive Wassermann reaction persisted in the cerebro-spinal fluid after three months' treatment was almost certainly a general paralytic. Colonel L. W. Harrison (London) recommended that in the treatment of syphilis arsenic should be combined with other metals such as mercury or bismuth. There were many more relapses and cases of neuro-syphilis in patients treated with arsenic alone than when combined with mercury. Mr. Vogo (Edinburgh) described a test which he had worked out in conjunction with Dr. Kermack in which hypochlorite was used and which depended on the presence of protamine in the cerebro-spinal fluid. Dr. Fremont Smith (Boston, U.S.A.) said that lumbar puncture could be made painless. The President took a more optimistic view of the treatment of neuro-syphilis than some speakers, and showed a series of cases illustrating the results of treatment, principally with tryparsamide. The discussion was continued by Dr. Sandeman (Aberdeen) and Dr. Margaret Rorke (London).

TREATMENT OF GONORRHOEA.

Major E. C. Lambkin, R.A.M.C., read a paper in which Major Lyn Dimond, R.A.M.C., had collaborated, on a gonococcal vaccine which was exclusively composed of polar (or Babès's) bodies. The existence of these had been previously known, but Major Dimond had now found that when the gonococcus was grown on a medium rich in animal nucleo-protein they were produced in large numbers, and could be separated from the gonococci to which they were only loosely attached by washing off the culture with preferably human serum, or 2 per cent. saline, and centrifugalizing the emulsion; the polar bodies were then found in the supernatant fluid. The technical difficulties were considerable. The vaccine so obtained was employed by injecting intraurethrally, and also subcutanously under the skin of the penis; the preliminary results had been extremely encouraging. Some cases of gonorrhoea had been cured by a single injection within three days, even when subjected to the strongest provocative tests employed to wake up a possibly latent infection; in other cases general all-round improvement had been obtained, and the relapse rate in cases discharged as cured was lower than it had ever been. In addition to the gonococcus, it had been found that all other organisms so far examined were capable of producing polar bodies when suitably cultivated, and it appeared probable that vaccines containing these polar bodies were far more efficacious than others. Colonel L. W. Harrison (London) said that he had been able to confirm the clinical results of using this vaccine in gonorrhoea.

BISMUTH IN THE TREATMENT OF SYPHILIS.

The President, opening a discussion on the value of bismuth in the treatment of syphilis, said that the time had not yet arrived to assess its end-results, though arsenic was undoubtedly much more deadly for the spirochaete than bismuth. It was almost impossible to find spirochaetes in lesions after a single dose of arsenobenzol, while active organisms capable of infecting could be found in excised glands after repeated doses of bismuth. Nevertheless, the clinical results of bismuth in late cases were amazing, and very nearly as rapid as arsenic, but it was not so potent in early cases. It was most valuable in cases which had been treated with novarsenobenzol and had relapsed; it was also extremely useful in cases hypersensitive to arsenic, which, fortuately, were never also hypersensitive to bismuth. Bismuth occasionally caused dermatitis, and he had seen it in one case cause a recrudescence of dermatitis originally due to arsenic. It was a remarkable thing that, although bismuth was a strong cardio-vascular poison to animals, it caused no ill effects to the liver or kidneys in man, and could be used in nephritic patients. Whether the combination of arsenic and bismuth was preferable to arsenic and mercury was somewhat doubtful; personally he thought the bismuth combination slightly superior, and it had the advantage that it could be given for long periods with less disturbance than mercury, even if the technique of mercurial administration was good. But it was not to be regarded as a substitute for arsenic, and it was not justifiable to give bismuth alone to early cases. Dr. J. C. Buckley (Nottingham) considered bismuth second only to arsenic in importance in the treatment of syphilis, and a long way in front of mercury. He thought that the combined treatment, properly administered, ought to be followed by nearly 100 per cent. of cures in reasonably early cases. In only one type of case had he found mercury more effective than bismuth—namely, in interstitial keratitis. He gave 0.2 gram daily, a very small dose according to some authorities. He asked whether the blue line which so often appeared on the gums called for the cessation of bismuth treatment. Dr. Mary Macnicol (Edinburgh) said she realized more and more the value of bismuth as an adjuvant to arsenic in treatment. She had found it useful both in acquired and congenital cases in reducing a persistent positive Wassermann reaction. Dr. E. T. Burke (Manchester) agreed that bismuth was nearly as potent as arsenic, and far more so than mercury. He had discarded mercury in his clinic for the last two years except for cases resistant to bismuth. He used it, not instead of, but alternately, with arsenic. But in cardio-vascular syphilis he thought it safer to use bismuth only, and he preferred metallic bismuth suspended in glucose. Dr. W. R. Snodgrass (Glasgow) said that bismuth was most helpful in cardio-vascular syphilis, neuro-syphilis, and debilitated individuals generally. Colonel L. W. Harrison (London) referred to the work of Collard and Evers, who formed a deposit of bismuth in the ear of rabbits which, so long as it was intact, prevented the development of a chancre; as soon as it was excised the chancre appeared. Bismuth was particularly useful in myocarditis, often in combination with small doses of sulfarsenol. Certain toxic effects, such as rheumatic pains and occasional dermatitis, might follow its use. Dr. Stopford Taylor (Liverpool) and Dr. William Brown (Glasgow) also spoke.

SECTION OF RADIOLOGY.

Wednesday, July 20th.

DIAGNOSIS OF INTRATHORACIC GROWTH.

AT the Section of Radiology, under the presidency of Dr. J. M. Woodburn Morison (Edinburgh), a discussion on *x* rays in the diagnosis of intrathoracic growth was opened by Dr. Stanley Melville, who pleaded for early diagnosis in view of the fact that certain benign tumours tended to produce pressure effects and to become malignant. He urged the importance of inducing an artificial pneumothorax for diagnosis and, as a preliminary to surgical measures, in reducing pleural shock to a minimum. Mr. C. Thurstan Holland (Liverpool) said that, while it was easy to demonstrate by radiography various growths in the chest, their differential diagnosis was often extremely difficult and sometimes impossible. Very many intrathoracic cases were not diagnosable by *x* rays only, and the co-operation of the clinician and the pathologist was necessary. Dr. A. E. Barclay (Manchester), Lord Dawson of Penn, and Sir Humphry Rolleston emphasized the importance of the clinician and the pathologist working together, and were followed by Dr. Campbell Suttie (Glasgow) and Dr. L. A. Rowden (Leeds).

TREATMENT OF CARCINOMA OF THE BREAST.

Dr. N. S. Finzi (London), opening the second discussion, said that treatment by radium needles was most effective in cases of breast carcinoma which were not too advanced. Palliation and prolongation of life were the rule, cure the exception. Radium seemed to give better results than *x* rays, but delay in commencing treatment was regrettably common. Dr. J. H. Douglas Webster (London) said that it was no longer true that the only chance for a patient with cancer of the breast was early operation. By radiological methods alone results in cancer of the breast were now being obtained by some radiologists similar to those already attained by radiation in uterine cancer—namely, a certain percentage of inoperable cases cured, while in the

operable group the results were rather better than those of surgical treatment. Professor M. J. R. Hayes (Dublin) showed tables illustrating, in 53 unselected cases, the time and sites of recurrence. He also emphasized the necessity of knowing the histology of the cases treated. Dr. A. E. Barclay (Manchester) had found the immediate results of radiation treatment good, but the ultimate results less satisfactory. If *x*-ray applications were started within three weeks after operation there seemed to be a far smaller number of recurrences than when treatment was delayed longer. Dr. W. M. Levitt (London) gave an account of some histological examinations in cases which had received intensive irradiation. Dr. R. E. Roberts (Liverpool) had found that patients who had received lead injections responded better to *x*-ray treatment, perhaps because of an intense secondary radiation. The President thought it desirable, from the point of view of duration of life, to compare not only cases which had been submitted to different methods of treatment, but those which had received no treatment at all.

SECTION OF HISTORY OF MEDICINE.

Friday, July 22nd.

Evolution of Disease.

THE President, Dr. J. D. Comrie, called attention to the fact that this was the first occasion on which a Section of the History of Medicine had been held at a British Medical Association Meeting. Sir Humphry Rolleston, Bt., opened a discussion on "The historic evolution of disease." Dealing with clinical variations in disease from the historical point of view, he said that the surest, though a much limited means of getting reliable knowledge as to the nature of disease in the past was through morbid anatomy, which had been cultivated under the name of palaeo-pathology. This showed, for example, that arterio-sclerosis, tuberculous disease of bone, mastoid disease, rheumatoid arthritis, gout, talipes, pyorrhoea, appendicular adhesions and achondroplasia, among other diseases, had been well known in ancient Egypt several thousand years B.C. Information was also to be obtained from the available pictures of antiquity. From pictures in Egyptian tombs, achondroplasia was known 5,000 years ago. Rickets was shown in the pictures of Pompeii and Herculaneum, the adenoid facies could be seen in a portrait in the Uffizi Gallery at Florence, and the dancing mania of the fourteenth and fifteenth centuries had been drawn by Pierre Breughel, so that it could be identified with major hysteria. Paintings showing the buboes of the plague, leprosy, hydrophobia, and many other diseases were also available. The written records of acute diseases were more numerous, but at the same time more difficult to utilize than representations by the plastic artist. Alterations in the methods of description and in nomenclature interfered with the identification of bygone epidemics. The question of change of type in disease was one of great importance in medical history. Alteration of clinical manifestations might depend upon secondary infections, as in the case of the severer epidemics of influenza and in the case of bad attacks of small-pox, which apparently depended for their virulence upon accompanying streptococcic infections. New diseases also crystallized out from old descriptions. Thus typhoid, paratyphoid, and typhus fevers had all been separated in the course of time from the old "continued fever," and the same applied to the various forms of anaemia. War and its attendant circumstances might so alter conditions as to lead to the appearance of new forms of disease such as trench fever, trench nephritis, and epidemic jaundice. The clinical recognition of diseases now distinct was often difficult in a historic sense. Tuberculosis had been identified in the Egyptian mummies. From written records there was evidence that pulmonary tuberculosis was very prevalent in ancient Greece. Mumps, too, was accurately isolated in ancient Greece, and bubonic plague was a disease of established antiquity. On the other hand, the nature of the plague of Athens was disputed and had been thought by various authorities to be malignant scarlet fever, small-pox, or typhus. The pestilence in Rome noted by Galen was supposed by Crawfurd to be more than one disease throughout the fifteen years of its duration. Malaria had been prevalent in Greece from the fourth century B.C., but the history of diphtheria exemplified the difficulty of distinguishing between acute infections of the throat and identifying them with those now recognized as quite distinct. It had been contended, indeed, by Adami that diphtheria arose as the result of the transformation under special circumstances of a harmless diphtheroidal organism into a virulent pathogenic bacillus. In conclusion, the opener of the discussion drew attention to well known changes which had taken place in the incidence of appendicitis and of aneurysm.

The discussion was continued by Dr. G. Matheson Cullen (Edinburgh) in a paper entitled "World epidemics and their relationship in cause and effect to social conditions." He traced particularly the wide-reaching effects on the destinies of the human race that had been produced by the three great epidemics of plague. Miss M. C. Buer (Reading) contributed a paper on "The effect of early industrialism upon the health of the community." She showed that the conversion of the population of Great Britain from an agricultural to an industrial one about the middle of the eighteenth century had been followed by a diminution in the death rate and a considerable decrease in sickness. Diseases like rickets and scurvy had previously been rife on account of the fact that vegetables and root crops were insufficient to supply the needs of the population and that animals were slaughtered in great numbers every autumn to provide salted food during the winter. With the collection of people in the towns vegetables had been produced for market instead of merely for immediate consumption. Changes in sanitation and in the comfort of living had occurred at the same time, and work in the newly established factories of the late eighteenth century was much more healthy, however bad the factories, than work in small private dwellings which were used at the same time as living place, sleeping place, and workroom. Professor van Leersum (Amsterdam), Dr. Ratcliffe (Birmingham), Dr. Stephenson (Edinburgh), Dr. Warden (Cannes), Sir StClair Thomson (London), and Dr. Wright (London) also took part in the discussion.

Independent papers were read on "The historical aspect of quackery," by Professor A. J. Clark (Edinburgh) and on "The methods of introduction of drugs," by Professor W. J. Dilling (Liverpool).

SECTION OF MEDICAL SOCIOLOGY.

Friday, July 22nd.

Voluntary Hospitals and Municipalities.

THE President, Dr. F. N. Kay Menzies, alluded to the lamented death of Dr. Cruickshank, one of the vice-presidents of the Section. Mr. Herbert L. Eason then read a paper on the future relation of municipalities to the voluntary hospitals of this country. Emphasizing the fundamental importance of medical education in every aspect of treatment for the community, Mr. Eason made the striking proposal that in any extension of State or municipal hospital services the voluntary teaching hospital should have the predominant share in the hospital administration. If and when the Poor Law infirmaries became municipal hospitals, they should be managed by the teaching hospital of the area as a mother hospital, on lines similar to those on which venereal disease clinics were administered. The mother hospital would supply the medical and surgical staffs; the hospitals would be subject to inspection by officials of the municipality; there might be representation of the municipality on the hospital boards; and the municipality would foot the bill. In this way stereotyped officialdom would be avoided, and an atmosphere suitable for research and freedom of thought would be maintained. Mr. M. A. Reynard, chief executive officer of the Glasgow Parish Council, approached the matter from the point of view of the treatment of the patient, and without reference to medical education. He described four Poor Law hospitals, and maintained that with efficient co-operation municipal and voluntary hospitals could work hand in hand. But he envisaged the creation of a hospital service for the whole country under which, though much charity

would dry up, the cost would fall more equitably on those able to pay. He remarked that where institutional accommodation was provided it invariably brought with it an increased demand. Sir Henry Keith advocated small hospitals with the use of motor transport, and desired that voluntary hospitals should be left unimpeded by the restrictions of public authorities. Dr. Kinloch (Aberdeen) thought that the method of management of hospitals was not important to the medical profession. Dr. Brackenbury urged the claims of the general practitioner for the proper treatment of his patients. Sir Norman Walker thought that co-operation—for which he would like another word—would solve all difficulties. Dr. Drummond Shiels believed that all medical services would ultimately be included under State or municipal administration. Dr. Macgregor felt that Mr. Eason's governing body would be unable to visualize the whole needs of the city. Dr. Stella Churchill considered that the difficulties raised about municipal control were illusory; and Dr. Manknell protested against chronic or incurable patients being sent back to their homes too soon by Poor Law hospitals which posed as municipal general hospitals.

Reviews.

THE GENETICS OF SEXUALITY.

THE Cambridge University Press has recently started a series of works on comparative physiology. The first and second volumes have been issued simultaneously, and we are here concerned with the second. It is entitled *The Genetics of Sexuality in Animals*,[1] and is by Dr. F. A. E. CREW. It provides a very clear and not too lengthy account of the mechanism of sex-determination and sex-differentiation, and of the physiological processes involved. Genetics has, he considers, been too long engaged in discussing the ratios between classes of related individuals which appear in successive generations of an experiment starting with two types differing in respect of one or more heritable characters. Important as the collection and interpretation of ratios undoubtedly is, it must be confessed that to the reader who is not deeply versed in the science of genetics a shifting of the standpoint towards the physiological aspect of the subject imparts an interest that was lacking before, and we are conscious of this increased interest in reading Dr. Crew's book.

The explanation of the process by which sex is determined is a problem of more than general interest; its study has led scientists into an analysis of the structure of the cell which, in its wonderful results, is in some degree comparable to the analysis of the atom in physics. Not only have the chromosomes concerned in the determination of sex been identified, but some progress has been made in unravelling their minute structure and the functions of their constituent units. It is now known that the impress of sex is discernible not only in the ova and spermatozoa, but also in every cell of the body, and that that inequality of the sexes which is so distasteful to a certain type of political theorist, is prefigured in the unfertilized germinal elements even before the individual can be said to have started on his or her career. It appears that both kinds of germinal cell, male and female, contain an equal amount of chromosome-substance, but that whereas in the female cell the substance is, in normal circumstances, of one kind only, namely X, part of this is in the male replaced by a different substance, Y; if the amount of X is above a certain limit the cell is female, if below, it is male; and observations have proved that if to a cell of male constitution an additional quantity of X is added, femaleness will result. Development, however, cannot take place without fertilization, and in this process it is imperative that the sex-difference shall remain intact and also desirable, under a monogamous dispensation, that the sexes shall be numerically equal. This is effected in the following way. The chromosomes concerned in sex are arranged in pairs, XX in the female, XY in the male; during fertilization the unfertilized ovum exchanges one of its X-chromosomes for a chromosome from the sperm—the assumption of an X producing an XX fertilized ovum or female, of a Y an XY fertilized ovum or male; and as the chances are even, males and females will be numerically equal in the long run. It is obvious, therefore, that sex is determined at the moment of fertilization, and that attempts to modify the sex of the foetus by such measures as feeding the mother on various chemical substances can be expected to lead at best to the production of pseudo-hermaphroditic monsters. A good deal of this is explained, with diagrams which help to make it clear, in Dr. Crew's British Medical Association lecture, which was published in our issue of August 14th, 1926, p. 285.

The problem of sex-differentiation differs from that of sex-determination. At a certain stage of development there exists no gross distinction in the conformation of the male and female; but subsequently a transformation occurs and the respective external genitalia, genital glands, accessory passages, and secondary sexual characters make their appearance in orderly succession. This differentiation is, according to Dr. Crew, dependent on the sex-impress inherent in every cell of the body, reinforced by a sex-hormone elaborated by the sexual glands.

The truth of the above theories of the physiology of sex is put to the test in explaining the nature of the numerous sexual anomalies which are met with in the animal kingdom, and this forms a large part of Dr. Crew's very interesting book.

[1] *The Genetics of Sexuality in Animals.* By F. A. E. Crew, M.D., D.Sc., Ph.D. Cambridge Comparative Physiology. London: Cambridge University Press. 1927. (Demy 8vo, pp. x + 188; 37 figures. 10s. 6d. net.)

MEDICAL PRACTICE: ITS OPPORTUNITIES AND RESPONSIBILITIES.

CERTAIN recent experiences in the courts and relating to the administration of the Lunacy Acts have, in a somewhat startling fashion, impressed on members of the medical profession some of the acute responsibilities which the law may require at their hands. From the particular instance attention may well pass to the general situation, and hence a volume on *The Conduct of Medical Practice*,[2] by the Editor of the *Lancet*, is far from unhappy in the moment of its arrival. As director of an important medical journal he has many opportunities both of judging policy and of affording advice to individuals. He is therefore equipped by experience alike in the discussion of principles and in the application of these to actual events. Yet though the book is happy in its hour, we are not sure that its title is quite so fortunate. Its real theme is the conduct of the practitioner as this is or may be affected by legal or other claims, whereas the chosen phrase suggests rather a pathway to mundane success. Possibly the point is unimportant, and in any event the author and his colleagues have certainly produced a book which cannot fail to be of service to many members of the profession and to prevent, if carefully studied, many anxieties and embarrassments.

That counsel of the order provided in this volume is needed is evident when the special position of the medical practitioner is considered. Like his fellow citizens, he has his general civic responsibilities, and comes under the legal doctrine that ignorance of the law is no excuse for a breach of the law. This burden is increased by a number of special statutes which prescribe for the practitioner duties and responsibilities in relation to the courts of justice, to various public bodies, to administrative records, and to other specific obligations, as well as to the individual patients immediately under his care. Even here, however, the list is not exhausted. In addition, there is the internal or domestic discipline of the profession as this is determined in part by the General Medical Council, in part by the rules of the various licensing bodies, and in part by established custom, order, and habit. Thus the claims are numerous and varied, and many of them are not wanting in complexity; and the opportunities for blunders and mistakes are correspondingly abundant. Mere goodwill and excellent intentions are not enough. He who

[2] *The Conduct of Medical Practice.* By the Editor of the *Lancet* and expert collaborators. London: The *Lancet*. 1927. (Demy 8vo, pp. xv + 332. 10s. 6d. net.)

would travel safely must know the risks and dangers of the road.

The book is certainly comprehensive, and indeed may be described as complete. Practical business and high doctrine are both fairly presented. Thus severe details of methodical bookkeeping and the demands of the tax collector are here, as are also the delicate questions which arise in connexion with the secrecy of professional confidences, the arrangements of partnerships, and the responsibilities due to colleagues. Chapters on the Dangerous Drugs Act and the National Insurance Act illustrate the increasing pressure of law upon medical practice; and there is no finality, for even during the present month a new Births and Deaths Registration Act has altered the practitioner's duties in certain important respects. Even our senior readers therefore cannot afford to indulge a little folding of the hands to sleep, and the fortunate juniors, whether they realize it or not, need particularly to mark and to learn the counsels and information which the book before us supplies. For any member of the profession entering on practice, whether as an assistant or a locumtenent or a partner or a principal, here are lessons and guidance which may save him many mistakes and anxieties, and prove a very present help in time of trouble. We may suggest one criticism—namely, that our brethren north of the Tweed will be likely to consider that the positions created by the special characters of Scots law receive inadequate recognition.

There are still two features of the book that particularly attract our sympathy. One is the reiterated advice to every medical man and woman to become a member of one or other of the medical defence societies. Again and again, and in spite of warnings and exhortations, practitioners are to be found entangled in perplexities and responsible for heavy legal charges when under the expert guidance open to members of a defence organization their troubles would either never have happened or would have been easily and peacefully resolved. Members of the profession are not ungenerous to colleagues who by misadventure fall under legal and financial penalties, but appeals of this order are hard to justify when, by prudence and a small annual subscription, every practitioner can secure his own position.

A further welcome note in the book is a fairly sustained effort to show throughout that the customs and claims of medicine are founded, not on a narrow professional prejudice or selfishness, but on the broad basis of public interest. The community generally, and apparently in increasing measure, cultivates a critical attitude towards medicine and medical practitioners, and it is well that not editors alone, but the individual doctor, should be prepared to show that both the domestic rules of the profession and its external policies are framed in the interests alike of the common health and of the individual patient. The editor and his colleagues have kept this sound doctrine well in view, and for this we owe them thanks.

THE AIR FORCE MEDICAL MANUAL.

AN official publication that is of more than usual interest is the *Manual for Medical Officers of the Royal Air Force*,[3] the first edition of which was issued recently. It consists of two parts. The first contains administrative instructions regarding general organization and duties of the medical service, medical examinations and boards, records and returns and medical stores, and a detailed account of the measures required for the control of communicable diseases. The medical examinations entail precise records of facts and assessment of the disabilities attributable to air service. Injuries contracted during games and physical recreations organized by, or with the approval of, the Air Force authority are regarded as directly attributable to conditions of service and are assessed as such. The section on communicable diseases is full. It is, however, open to criticism of the extent to which measures of control by prophylactic and therapeutic inoculations are carried, especially in such diseases as scarlet fever, measles, and whooping-cough; the same thing may be said also of the section on dysentery, as the measures recommended are still in an experimental and tentative stage. Practically every channel of communicable disease is detailed. There are tables showing the periods of incubation and segregation, and in separate columns the medium by which a disease is spread, the specific diseases communicated by each medium, the measures for detecting carriers, for dealing with each case as it occurs, and for the protection of attendants on the sick. This exhaustive section includes also instructions on vaccination and inoculations, and on collecting and dispatching material for chemical and bacteriological examination. Each individual member of the Royal Air Force would appear to be liable to thorough bacteriological examination, not only when he is actually suffering from an illness, but also when he has been in contact with a sick person or is suspected of being a carrier. Among other provisions for dealing with carriers a nominal roll of persons employed must be hung up on the door of a cookhouse or canteen and each individual certified to be free from dysentery, typhoid, cholera, and undulant fever germs. A re-examination must be made every three months, and a fresh certificate signed. It is further required that carriers shall be segregated, and in the case of suspected syphilitic sores bacteriological and Wassermann tests are to be repeated, even though on two or three successive occasions the result has been negative. Points such as these indicate the thoroughness of the instructions for the prevention of disease in the Air Force. Some twenty diseases, not notifiable under the Public Health Acts, must be notified by its medical officers. Prophylactic inoculations for several of them must be made annually or before the season when disease such as cholera or plague is approaching. Contacts and carriers are under control, and it is laid down that men with herpes zoster are to be regarded as carriers of chicken-pox; here the compilers of the manual lay themselves open to criticism.

Part II is of more special interest, as it deals with the measures for examining and assessing the physical and psychological condition of airmen, and especially the tests for the organs of special sense and for muscle balance and power of co-ordinated movement. Efficiency is determined by marks given in connexion with the various tests. One of the tests, very fully detailed, is that for heterophoria with the Bishop Harman diaphragm instrument; by means of it the pilot's power of landing safely is determined. In flying, each pilot is rightly regarded as an individual requiring special study. The medical officer is therefore told that his best work can be done in the mess, on the aerodrome, or at games. There is an excellent chapter on high altitude flying and administration of oxygen.

On the whole this is a manual which impresses the reader who is not in the Air Force with the extent and variety of the special attainments and qualifications required by medical officers of that branch of the service, and by the amount of laboratory investigations which they are called upon to undertake.

SEGREGATION AND AUTOGAMY IN BACTERIA.

IN *Segregation and Autogamy in Bacteria*[4] STEWART brings forward evidence which, he considers, shows that the lower bacteria pass through a life-cycle with alternating phases of asexual and sexual (autogamic) reproduction. After a short summary of the previous literature on variation in bacteria, the writer's numerous experiments on coliform and allied bacteria are described. Briefly, his view of the life-history of such a bacterium is as follows: "If it is placed in new surroundings with sufficient food it multiplies quickly by simple fission (colony formation). This vegetative phase is stopped by an intrinsic force, but it can be either lengthened or shortened by external conditions (amount of food available, moisture, crowding), and it can be continued indefinitely by frequent change of surroundings.

"Shortly before vegetative growth stops the second phase of the life-cycle begins, in which a few out of the great number of bacteria in a colony (either on solid or in liquid

[3] *Manual for Medical Officers of the Royal Air Force.* H.M. Stationery Office. April, 1927. (8vo, pp. iv + 241. 3s. 6d. net.)

[4] *Segregation and Autogamy in Bacteria.* By F. H. Stewart, M.A., D.Sc., M.D., Major I.M.S.(ret.). London: Adlard and Son, Ltd. 1927. (Demy 8vo, pp. iv + 104; 4 plates, 23 tables. 7s. 6d. net.)

nidus) go through segregation, autogamic conjugation, and, in certain circumstances, variation. In spore-bearing races the zygote forms the spore. Segregation in bacteria is the same as in higher forms; in it allelomorphic couples of the organism divide. We know little about the mechanism of autogamy, but it seems not unlikely that before segregation takes place each allelomorphic couple is represented in the 'anterior' and 'posterior' halves of the bacterium (Schaudinn and Dobell's pre-sporing division), and that, after segregation, and if nothing disturbs them, the 'right-hand' allelomorphs of one half of the body unite with the 'left-hand' allelomorphs of the other. At least this is as good a mental picture as any other. But, if a definite external stimulus is at the moment bearing on a heterozygous bacterium, then in the one pair (anterior and posterior) of allelomorphic couples which is concerned with the stimulus, the dominant allelomorphs are dissipated (as primitive polar bodies?), the recessives come together, and the bacterium varies.

"The recessive so formed may also vary in simple fission if one of its recessive allelomorphs is not pure but is loaded with a fragment of the dominant factor. It may then vary in two directions—by increasing, or decreasing, this fragment."

GUY'S HOSPITAL REPORTS.

THE second quarterly number of this year's volume of the *Guy's Hospital Reports*[5] contains eleven articles dealing with medical, surgical, and pathological subjects of great interest. In his full paper, recently read in abstract before the Odontological Section of the Royal Society of Medicine, on the relationship of oral infection to diseases of the skin, Dr. H. W. Barber considers the diseases directly or indirectly caused by oral sepsis under seven heads, and, after insisting on the importance of studying the metabolism, diet, and environment of patients with chronic infections and of discovering the factors which reduce the resistance to the infecting organism, points out that a dramatic and complete recovery is unfortunately rare after removal of an obvious focus, as secondary and inaccessible foci are often present. Mr. C. R. E. Freezer describes extensive cutaneous metastases in a case of latent carcinoma of the cardiac end of the stomach, in which a remarkable power of producing scar tissue round the metastases was shown, so that a biopsy of a cutaneous nodule presented the microscopic appearances of a keloid. The extremely rare occurrence of acute suppurative gastritis is shown by the absence of this condition in the *post-mortem* records of Guy's Hospital during the last thirty years, and fully justifies the record of an example by Mr. D. C. M. Ettles, who summarizes the literature. Dr. B. G. Scholefield, Commonwealth Fund Fellow, describes experiments tending to show that the symptoms of acute intestinal obstruction are due to a soluble toxin absorbed through the portal system; he gives a critical review of the various methods of treatment. A case of subacute yellow atrophy of the liver after excessive doses of atophan is recorded by Dr. G. W. Rake, who also contributes an interesting paper on the pathology of achalasia of the cardia. Dr. J. M. H. Campbell gives a detailed account of observations on the pulse rate after exercise in health and in heart disease. The clinical syndrome of intracranial aneurysm, described four years ago in these *Reports* by Dr. C. P. Symonds, is illustrated by the report of a case of a probably congenital intracranial aneurysm in a boy, aged 18 years, associated with spontaneous subarachnoid haemorrhage; the patient was still alive at the time Dr. Maurice Shaw wrote this article. Periarterial sympathectomy is discussed by Mr. E. G. Slesinger, and Mr. Philip Turner records, with skiagrams, a case of fracture of the patella wired by the late Sir Henry Howse thirty-eight years ago. Dr. W. L. Watt and Mr. J. F. Carter Braine of the deep *x*-ray department analyse the cases of leukaemia admitted to the hospital during the last twenty-six years with the object of assessing the value of the various methods of treatment.

[5] *Guy's Hospital Reports*, vol. 77 (vol. 7. Fourth series), No. 2, April, 1927. Edited by Arthur F Hurst, M.D., and W. H. Ogilvie, M.Ch. London: The Lancet Limited. (Med. 8vo, pp. 127-252; 27 figures. Annual subscription £2 2s.; single numbers 12s. 6d. net.)

NOTES ON BOOKS.

STRÜMPEL'S popular textbook of pathology and therapeutics,[6] in two volumes, reached its twenty-fifth edition last year. It was soon exhausted, and a new edition of the first volume has again been revised by Professor CARLY SEYFARTH. The opportunity has been taken to add some further details and illustrations, including a short reference to the Schick test. The absence of an index in this volume is regrettable.

A second edition of *Examination of Children*,[7] by Dr. A. LEVINSON, first published in 1924, has now appeared. While certain of the methods of examination have been expanded, the criticism previously made in our columns of the brevity of some of the descriptions and tests still holds good; as an index of various kinds of clinical procedures the book is, however, of definite value.

Mr. ROY CALVERT'S book[8] betrays its bias, first, in Lord Buckmaster's introduction, and secondly, in the very beginning of Chapter I. This is not a serious attempt to assess the value of capital punishment as a deterrent by a calm and reasoned consideration of the evidence, but, assuming from the beginning that capital punishment is worse than useless as a deterrent, it seeks to support this thesis by all available means. Most thinking persons are agreed that the present law, which makes no difference between the deliberate secret poisoner for gain who watches day by day the sufferings of his or her victim unmoved and pitiless, on the one hand, and on the other the man who, goaded by provocation to fury, strikes down his enemy in a sudden rage, is unjust. Few will deny that there should be degrees of the crime of murder, and that there should be a punishment fitting to each degree. But not a few cultured and candid persons will admit that the reasonable certainty of the death penalty would act as the determining consideration to their minds in deciding between committal and non-committal of a deliberate homicide. There seems to be a grotesque disproportion in the minds of certain persons between the value of the lives of cruel murderers and of those who go down to the sea in ships, up into the air, or on roads and railways for the use and comfort of those gentlemen who sit at home at ease and shudder at the thought of the assassin perishing by the sword or noose or electric chair.

In a little volume entitled *A B C of Jung's Psychology*,[9] Miss JOAN CORRIE aims to place before the educated layman the principal psychological views of Dr. Jung of Zürich in simple and untechnical language, his own published works being, for the most part, as the writer observes in her preface, too abstruse for the general reader who is not a psychologist. The book contains four chapters: the first concerns "mind and its structure"; the second, "mind and its functions"; the third, "mind and its disturbances"; and the fourth, "the significance of dreams." The second chapter includes a brief but clear account of Jung's "psychological types." The writer set herself a difficult task and has carried it out well.

"A Layman and his Wife" seem to have spent much of their time in constructing new or transforming old houses. They record their judgements on comfort, convenience, and the saving of labour, in construction and fitments, in their little book *Planning a Home*.[10] They give floorplans for a "week-end nest," a "sunshine cottage," a "house with angle bays," and a "two-maid house." The subject is treated under the headings: aspect and site, roofs, walls, floors, windows, and w.c.s, with chapters on lighting, heating, and plumbing. The authors are both forcible and wary. They think that the man who converts most of his small garden into a "ducky little paved garden" will throw bricks at it in a year's time. They would reject a site where the water is contaminated by sewage, because through carelessness, ignorance, or haste unboiled water would probably be used sooner or later. They are very partial to flat roofs; but whether these are really suitable for the English climate, and how far they can be made to fit in appropriately with local scenery, is perhaps doubtful.

[6] *Lehrbuch der Speziellen Pathologie und Therapie der inneren Krankheiten.* Von Professor Dr. med. Adolf Strümpel. Sechsundzwanzigste Auflage von Professor Carly Seyfarth. Erster Band. Leipzig: F. C. W. Vogel. 1927. (Sup. roy. 8vo, pp. xv + 870; 160 figures, 10 plates. M.45.)

[7] *Examination of Children.* By Abraham Levinson, B.S., M.D. Second edition. London: H. Kimpton. 1927. (6¾ × 7½, pp. 192; 85 figures. 15s. net.)

[8] *Capital Punishment in the Twentieth Century.* By E. Roy Calvert. With a preface by the Right Honourable Lord Buckmaster, P.C. London and New York: G. P. Putnam's Sons. 1927. (Cr. 8vo, pp. xii + 204. 5s. net.)

[9] *A B C of Jung's Psychology.* By Joan Corrie. London: Kegan Paul, Trench, Trubner and Co., Ltd. 1927. (Cr. 8vo, pp. x + 85; 4 figures. 3s. 6d. net.)

[10] *Planning a Home.* By a Layman and his Wife. London: J. W. Arrowsmith, Ltd. 1927. (Cr. 8vo, pp. 175; illustrated. 5s.)

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SATURDAY, JULY 30TH, 1927.

THE EDINBURGH MEETING.

THE ninety-fifth Annual Meeting of the British Medical Association ended on Saturday last, and all who visited Edinburgh for it can congratulate themselves upon having taken part in a great event in the history of our Association. Many circumstances combined to make it a brilliant success. The proceedings began auspiciously at a time when our Patron, the King, and Her Majesty the Queen were on a State visit to Holyrood, and the wonderful Scottish National War Memorial in the Castle was being opened by the Prince of Wales. The meeting coincided also with the celebration in Edinburgh of the centenary of Lister's birth, under the presidency of the Earl of Balfour, Chancellor of the University. But without such happy accompaniments this medical congress in the Scottish capital was bound to be a memorable occasion. Edinburgh is the home of one of the world's great schools of medicine; for centuries it has bred a line of teachers and workers whose names are part of medical history; and it is regarded with loyal affection by all members of our profession, at home and abroad, who have been trained within its walls. Moreover, the office of President is now held, at the unanimous wish of his colleagues in the city and district, by one of Edinburgh's most distinguished sons, who, when the British Medical Association last met there twenty-nine years ago, undertook the exacting duties of local general secretary. The high organizing ability, the kindly tact and discretion, displayed by Dr. R. W. Philip in 1898 have ripened, if that were possible, in the intervening years, and this splendid gathering in 1927 will always be associated with Sir Robert Philip as its central figure and leading spirit. One thing further must be said of the Edinburgh Annual Meeting in general. To the beauty of its setting was added a most generous welcome from the Edinburgh Branch of the Association and its President, Dr. John Stevens, from the University, and from the city authorities; and no praise can be too high for the staff work of the indefatigable honorary local secretary, Dr. Fergus Hewat, the local treasurer, Mr. Alexander Miles, the deputy local secretary, Mr. Frank Jardine, and the Scottish Medical Secretary, Dr. J. R. Drever—to name only a few among the many who have earned our gratitude.

As had been foretold, the meeting was a very large one, the numbers far surpassing those of any year except 1910, when the Association last met in London. During the week 2,375 members registered, but this figure takes no account of the many wives and daughters who also enjoyed Edinburgh's hospitality. Notwithstanding the large number of Sections, and all the temptations to play truant in and around the city, the attendance at the scientific and clinical proceedings was very good indeed; and, so far as an onlooker could judge from brief visits paid here and there, every speaker had an attentive audience, the debates went with a swing, and even the biggest lecture theatres of the new University building could scarcely hold all who wanted to join in the work of the leading Sections. Credit for this success must be given to those who picked the subjects and opening speakers, and kept in hand the business of debate. We cannot attempt to sum up now the value of the work done in the twenty-one Sections; but, as will be gathered from the preliminary notes appearing this week and next in the JOURNAL, and as the full reports will presently reveal, much useful interchange of experience and opinion took place on matters of great importance to doctor and patient, and to the public as well. The Pathological Museum was admirably planned and set out, and of the many interesting demonstrations arranged by the Museum Committee one at least must be noted here—the cinematograph film of living tissue growth, shown and explained to "full houses" by Dr. R. G. Canti.

Among those who took part in the scientific work were many distinguished colleagues from Canada, the United States, and the Continent, and their contributions lent an international air to the proceedings. Combined discussions, such as proved so popular at Bath and Nottingham, were held again last week, each aspect of a topic common to two Sections being opened by some prominent worker. These joint debates not only help the expert to keep up with recent advances in neighbouring fields, but attract the general practitioner, who at one time long ago was inclined, so it has been said, to look upon the Annual Meeting as little more than an occasion for squabbles and oratory, with a picnic at the end. A new Section, fittingly inaugurated this year, was that of the History of Medicine, a subject in which its President, Dr. John D. Comrie, has interested large numbers of Edinburgh medical students during the past eighteen years. Now that the meeting is over he may perhaps forgive us for disclosing his authorship of the series of articles on Edinburgh which have lately appeared in these columns.

Before the scientific work began four days had, as usual, been spent by the Representative Body of the Association in shaping medical policy and reviewing finance, organization, and administration. A full account of the first two days' discussions appeared in the last issue of the SUPPLEMENT, and our report is concluded this week. From this full and detailed record—to which the informal commentary printed in the JOURNAL under the heading "Annual Meeting Notes" may serve as a key—it will be seen that a long agenda of medico-political business was carried through, and that several matters of much importance to the profession were advanced a stage. If on the whole the temperature of the Representative Body tends to be subnormal nowadays, there are still a few subjects—such as the Memorandum on Lunacy Law and the report on the work and status of public school doctors—which seem able to cause mild pyrexia. There are moments, too, when a more genial warmth comes over its proceedings. Dr. Brackenbury ended on July 19th his third and last year as its accomplished Chairman, and the personal ties between him and his fellow workers were very evident when illness kept him out of the chair for a day, and again when it became known that the Council had elected him as its Chairman. The seven years spent in that office by Sir Robert Bolam have been a time of growing prosperity for the Association, and in all the progress made he can truly say "Pars magna fui." Never have Sir Robert Bolam's gifts been better displayed than on July 15th, when he put before the Representative Body the Council's plan for future building development at headquarters.

Upon the social side of the Annual Meeting of 1927 we will not dwell at length. Everyone knows the high tradition of Scottish hospitality, and that the ancient

capital takes pride in doing these things as they should be done. The bigger the occasion the more certain one may be that Edinburgh will do it justice. It would therefore be impertinent to praise Edinburgh for the skill and grace with which she has entertained the British Medical Association at an exceptionally busy time, with the tourist season at its height and the King and Queen in residence. We will merely say that the ceremonies, receptions, dances, excursions, and parties, both public and private, were all and more than all we expected; and, in the name of every one of the thousands who enjoyed these entertainments, we offer thanks to our colleagues and their fellow citizens.

MEDICAL CONFIDENCES.

WE published last week[1] the full text of the ruling by Mr. Justice McCardie, in a divorce case at the Birmingham Assizes on July 18th, with reference to the confidential nature of information given to the medical officer by a patient at a venereal clinic. The point had been obscured by the way in which the case was reported in the daily newspapers, and in order to make the matter clear we quoted a paragraph of the second Article of the Venereal Disease Regulations, which lays it down that "all information obtained with regard to any person treated" at a venereal disease clinic "shall be regarded as confidential," and to show the intention with which the Regulation was made we quoted also the explanation given in a circular issued with the Regulations. "It is," the circular said, "essential for the success of any measures designed to deal with venereal diseases that patients should be fully assured as to the secrecy of the arrangements." Mr. Justice McCardie referred to the Regulations, and said that doctors were not in a specially privileged position because they were acting in a department under the control of the Ministry of Health through the local health committee. He held that there was nothing in the Regulations which saved a doctor from the obligation of disclosing, if ordered to do so by the court, all the information he might have of the facts he had gained while acting under the Regulations. The information was therefore produced by the surgeon in charge.

In this ruling Mr. Justice McCardie followed that of Mr. Justice Horridge in a case heard in the Divorce Court in 1921. The late Dr. John Elliott of Chester was summoned as a witness, and called on to give evidence as to a disease for which he had treated the wife of the plaintiff. Dr. Elliott attended accompanied by counsel, but the judge refused to hear counsel. Dr. Elliott, on entering the box, asked the judge to exempt him, pointing out that he and other medical men had undertaken duties at the clinic on the distinct understanding that professional secrecy as to what happened there would be observed. He quoted the paragraph in Article II of the Public Health (Venereal Disease) Regulations which we quoted last week (and again in the opening paragraph of this article). The judge, however, said that the Ministry of Health had no power affecting the jurisdiction of the courts. When Dr. Elliott said that he was thus placed in a painful position, the judge made a distinction, which Mr. Justice McCardie clearly had in mind, and said: "You are bound to observe the regulations not to disclose voluntarily the information you have obtained, but it is your duty to give information to assist the administration of justice." Dr. Elliott observed that the medical officers of the venereal disease clinics did not undertake not to disclose voluntarily, but undertook not to disclose at all; to this the judge replied that it was not an unfair obligation on doctors to assist in the administration of justice. Dr. Elliott then gave his evidence.

As we then observed, and as we repeated last week, it would appear that until Parliament interferes the undertaking given by the Ministry of Health in the Public Health (Venereal Disease) Regulations has become of no effect. The only remedy seems to be fresh legislation, and in 1921 the Council of the British Medical Association drew the attention of the Minister of Health to the subject, and urged that the necessary legislative steps should be taken. Nothing, however, has been done; at any rate, no public step has been taken; and the public, which it nearly concerns, as well as the medical profession, have regretfully to realize that the supposed protection afforded by the Regulations is illusory. A very similar condition may arise in connexion with other administrative procedures sanctioned by the Ministry of Health under the Public Health Acts. One such case came before Lord Mersey in the Divorce Court in 1921. A firm of solicitors had approached a medical officer of health to supply particulars with regard to the notification of a stillbirth. When he declined they applied to the local council, but its public health committee refused to give any information, stating that it viewed with apprehension any departure from the usual practice of treating such notifications as confidential, and considered such a course would be against public policy. The medical officer of health was subpoenaed. Before giving evidence he stated that he was instructed by his committee to ask for the judge's ruling, pointing out that hitherto notifications under the Public Health Acts and the Births Act had been treated as confidential. Lord Mersey said there was no reason why the notification card should not be produced, that there was no instruction in the Acts to the effect that the information was confidential, and that he did not consider the production of the card would be against public policy.

Before this, we understand, the Ministry of Health had submitted the general question as to the position in law of medical secrecy to the then Lord Chancellor in connexion with the confidential entries on medical history cards under the National Insurance Act. The then Minister of Health said that the Ministry recognized that important issues were raised, but that he was advised that a person might be compelled, by means of a subpoena duces tecum, to bring any document, private or otherwise, to the court. The document itself—in this case the record card—was not evidence of the facts stated in it; if it was desired to prove them this must be done in the ordinary way—namely, by the oral evidence of the doctor himself.

In connexion with the recent Birmingham case, Dr. Vernon Davies, M.P., raised the point as it affects venereal clinics by a question to the Home Secretary in the House of Commons on July 25th (see p. 194). The Parliamentary Secretary to the Ministry said that the matter was difficult, and that the Minister proposed to give careful consideration to it. It will be a pity if it is allowed to lapse again on the ground that it is merely a question affecting professional secrecy, for it affects the good faith of the Ministry to the public. The principle by which the members of the medical profession are guided is as old as Hippocrates; one clause of the Hippocratic Oath has been translated thus: "Whatever, in connexion with

[1] SUPPLEMENT, July 23rd, p. 55.

ny professional practice, or not in connexion with it, I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret." The principle embodied in this has been accepted by the medical profession in all countries. Mr. Justice McCardie distinctly recognized it, for he said that "the medical profession normally was under the duty of keeping inviolate the secret knowledge that they might gain from treating their patients, and, indeed, might become liable to a civil action for damages if without lawful excuse the duty of confidence was broken." But the Hippocratic words do not cover all cases, uncertainty being introduced by the phrase "which ought not to be spoken of abroad." The legal ruling is that, as the law now stands, certain information must be "spoken of abroad" if a judge sitting in a court of law so requires. But the matter, as is very obvious, concerns the public, who have accepted the undertaking of the Ministry of Health that statements made to the medical officers of a venereal clinic will not be disclosed. We are advised that the only remedy the Ministry of Health has is by way of special legislation, which, we venture to think, should deal not only with venereal clinics, but with other regulations under which the same or similar questions arise. We feel confident that in Mr. Neville Chamberlain's hands the matter will not be allowed again to be forgotten.

ANNUAL MEETING NOTES.

THE REPRESENTATIVE MEETING.

Medico-Political Business.

WE conclude in the SUPPLEMENT this week our full report of the Annual Representative Meeting of the British Medical Association held in Edinburgh on July 15th, 16th, 18th, and 19th. On Saturday afternoon, July 16th, the representatives began consideration of the Medico-political report—by far the heaviest single section of its agenda. It is worthy of remark that when, on Monday evening, the Chairman of the Representative Body congratulated Dr. Bone upon the completion of what was, in his experience, a "record" period in charge of the business before the meeting, no single recommendation of the Council on this section of its Annual Report had been rejected or withdrawn, none had been substantially modified, and one point only had been referred back (by a very narrow majority) for consideration. Apart from those recommendations, the motions and amendments accepted by the meeting, whether from Divisions or from individual representatives, served in the main to emphasize, supplement, or elucidate, rather than to limit, the policy laid down in the report, while the discussion on those which were rejected or not submitted to a division showed the wisdom of the Medico-Political Committee in refraining from putting forward definite proposals upon those points at present. Fees and salaries were perhaps less prominent this year than has sometimes been the case, though the meeting received with great satisfaction the report from the Chairman of Council of the settlement of the difficult question of adjusting the scale for medical officers of health to meet Scottish conditions. Points of importance were settled by the meeting in connexion with the responsibility of local authorities for midwifery and ante-natal work, and the conditions of consultation under the puerperal pyrexia regulations. The suggested application of the principles governing the accepted policy of the Association as to maternity and child welfare services and the treatment of school children to the general provision of orthopaedic treatment was accepted. The policy of the Association was adjusted to the existing conditions of administration of general anaesthetics by dentists for dental purposes, and a scale of fees laid down for anaesthetics given by medical practitioners in connexion with dental benefit under the Insurance Acts. The tone of the general discussion on these and certain minor matters made it very clear that the Representative Body, no less than the Medico-Political Committee of the Association, is deeply concerned so to direct the increasing volume of communal effort in the provision of health services as to safeguard and extend the scope of the basic activities of the general practitioner, and to ensure a just measure of co-operation between the family doctor, the specialist, the whole-time health officer, and the general public. More particularly it emphasized the growing preoccupation of the profession with the position of the general practitioner in the development of ante-natal and midwifery services. The general debate upon the motions by Brighton on the State and medical practice, by Tunbridge Wells on whole-time officers and medical practice, and by Dr. Renton and Dr. Raven instructing the Council to consider the Midwives Act, 1918, in the interests of all concerned with ante-natal work, served to allow free expression of the general feeling on these points. The last mentioned motion leaves the Council with a mandate for constructive work of the first importance during the coming session. Apart from these questions, the attention of the meeting was chiefly engaged by the policy proposed for the development of the medical service of public schools and the standardization of the conditions of service for public school medical officers. The difficulty raised by Dr. Peter Macdonald in connexion with the determination and publication of a binding policy before consultation with the governing bodies of schools was met by discussing the whole subject in committee—an expedient that calls to mind the troubled days of the National Insurance Bill. Only one point in the detailed policy set out in the Council's report proved a source of any keen controversy—namely, the extension of the benefit of periodical medical inspection by the school medical officer from resident to day pupils. In committee the meeting favoured restriction of this service, both in the case of the whole-time medical officer (as proposed by the Council) and in that of the part-time medical officer. On report, Dr. Middleton Martin secured its reference for reconsideration by the narrow majority of 84 votes to 80 on a recount. The Council is now in a position to discuss the whole matter with the governing bodies of public schools and with the headmasters and headmistresses.

On the Supplementary Report of Council the Chairman of the Committee and Sir Richard Luce explained the results of the Association's efforts to secure the modification of the Trade Disputes Bill and the Landlord and Tenant Bill in the interests of the profession, and the points still at issue in connexion with the Registration of Nursing Homes Bill. After the lunch interval Dr. Brackenbury, who had been warmly welcomed on his return to the chair that morning, suspended consideration of the Medico-Political Report to allow the Overseas Report to be taken at the agreed time, and the meeting had an opportunity of hearing the representatives of the Overseas Branches. As was natural in view of the happenings of the past year, the speakers were mainly drawn from the ranks of the South African Branches. Their tribute to the value of the Association's work, and especially to the results of Dr. Cox's mission to South Africa, was much appreciated. The meeting also heard with interest explanations of local conditions from representatives of Ceylon and Bombay.

Conclusion of the Meeting.

The approval of the Medico-Political Report was followed by a prolonged discussion on the Memorandum from the

Lunacy Law Committee under conditions briefly explained in this column last week. The discussion, which is fully reported in the SUPPLEMENT this week, was continued on the resumption of business at the unusually early hour of 8.30 on Tuesday morning, and left the meeting with a considerable volume of work to be completed between the opening of the Annual Exhibition in the morning and the service at St. Giles's Cathedral in the afternoon. The remainder of the agenda, however, provoked singularly little discussion, although it included several matters of importance, notably the Council's proposals in connexion with the development of Ophthalmic Benefit. It may be hoped that the decision to accept the contribution offered by the trustees of the National Insurance Defence Trust to the Medical Representation in Parliament Fund, together with the proposed concentration upon securing the election of medical representatives for University constituencies, will mark a definite advance towards the attainment of adequate representation of professional opinion in Parliament. But if so, the passive acquiescence accorded by the Representative Body to Dr. Le Fleming's plea for an increase in individual contributions must be supplemented by a fuller measure of material support than it would in itself seem to foreshadow. On the Public Health and Poor Law Report, Dr. Lewys-Lloyd explained the part which should, in the opinion of the Council, be taken by the Association, both centrally and within the Divisions and Branches, in the education of the public in health matters, and suggested that, to avoid the overburdening of local secretaries, the new work should be carried out by *ad hoc* committees with special secretaries. The discussion showed that the ideas underlying the resolution of the Nottingham meeting and the proposals formulated by the special subcommittee to which the matter was referred are gaining ground definitely, if slowly, within the Association. On the report on Poor Law reform Dr. Brackenbury explained the way in which the new proposals, published by the Minister of Health since the completion of the Annual Report of Council, exclude that unification of local health administration which is a cardinal point in the Association's policy. He emphasized the need for securing some modification in these proposals before they are embodied in the projected bill.

The National Health Insurance and Hospitals Reports gave rise to a certain amount of discussion, but elicited little real opposition to the policy outlined by the Council. It was clear that the need of a clinic system in the development of ophthalmic benefit was fully recognized, alike by ophthalmic surgeons and by the Representative Body at large, and that the meeting was content to leave to the Council the elaboration of a scheme embodying the requisite safeguards. The discussion on hospital policy showed that the period of general education in the policy of the Association is bearing fruit. On the one hand, there was no opposition to the proposal to impress upon visiting staffs the importance of securing satisfactory recognition of their services in accordance with the Association's policy; on the other the Chairman of the Hospitals Committee was glad to accept, on a motion from Salisbury, the instruction to consider the formulation of a middle-class hospital policy, and the reference to consider the detailed proposals put forward by Brighton for the application of the hospitals policy in the better regulation of the contributory schemes which are permeating the whole hospital system of the country. The points made by Dr. Fothergill in his presentation of the motion commanded general support. For the rest, the amendment of the Council's recommendation as to the staffing of clinics and hospitals for the early treatment of mental disorders, proposed by Mr. Masterman and Dr. Gillespie of Belfast, was accepted by Mr. Souttar as a better expression of the real intention of the Council than the original motion. The object was not to exclude any group of medical men from their proper sphere of work, but rather to prevent the exclusion of specially qualified private practitioners from a field of service in which their work is of value. On the Naval and Military Report Sir Richard Luce emphasized the advantages offered to entrants to the R.A.M.C. at the present time. In presenting the report on medical benevolence Dr. Walker had once again to appeal for more effective support of medical charities, but on this occasion he was able to refer to signs of real progress made under the Association's scheme. The proposed reconstitution of the Charities Committee was approved. No discussion arose on the reports from Scotland, Wales, and Ireland. Dr. Hugh Miller called attention specially to the development of the social side of the Association's work, made possible by the possession of its new House in Edinburgh. Sir Ewen Maclean for Wales (in the absence of Dr. W. E. Thomas, Chairman of the Welsh Committee) and Dr. J. Mills for Ireland both emphasized the great value of the help received from Dr. Cox in all local difficulties. The meeting closed with the usual votes of thanks.

THE PATHOLOGICAL MUSEUM.

The organizers, no less than the exhibitors, are to be congratulated on the arrangement of the demonstrations in the Pathological Museum. The grouping of the exhibits according to particular departments in medicine, and the appointment of one authority responsible for each, contributed greatly to the success, and the large hall of the Anatomy Department, in which the demonstrations were assembled, was ideal for the purpose. It would be impossible in a short notice to detail all the interesting exhibits, and invidious to select for special mention any one, seeing that the level was so uniformly high and so varied in its appeal that one would have to be an expert in many departments of medicine to appreciate everything thoroughly. The writer of this note, therefore, can only state what appealed to him most, pleading his ignorance of the other groups so beautifully illustrated. Quite arresting, though not emphasized in the official programme, were the large-scale histological illustrations of pathological conditions—the work, it is presumed, of Mr. Richard Muir—which gave one the clue to the success of the Edinburgh methods in the teaching of students, and the beautiful wax models of skin diseases and syphilitic conditions from two separate departments of the University confirmed that impression. Of special interest was the excellent series of specimens of gall bladders removed at operation, showing single cholesterin stones causing mucocele or empyema, mixed gall stones with various pathological conditions, and chronic cholecystitis of different grades, all shown by Professor D. P. D. Wilkie. A very instructive exhibit, arranged by Mr. J. N. Hartley, demonstrated many pathological conditions of the thyroid gland. Some rare inflammatory states—such as tuberculosis, syphilis, and Riedel's thyroiditis—which present great difficulties in diagnosis, were illustrated. Simple goitres, parenchymatous, colloid, cystic, and nodular goitres, together with lingual and mediastinal tumours, formed an interesting group. The two types of toxic goitre—the exophthalmic and the toxic adenoma—and the various simple and malignant neoplasms, were also included. Professor John Fraser demonstrated large sections of the mammary gland in various normal conditions, in the resting stage and as affected by the menstrual function, as well as studies of the gland in malignant disease, showing the routes of lymphatic dissemination within the organ, and several uncommon varieties. One of these, showing cancerous formations in the wall of a large cyst which had existed for forty years, was of peculiar interest, in that it suggested that the irritation of the contents had produced the neoplastic response. It is almost ungracious to point out that this

excellent demonstration was marred by the inclusion of a diffuse carcinoma of the breast which was wrongly labelled as a hyperplasia in a virgin breast due to menstruation, and by the prominence given to a very common histological type which was said to be a rare comedone variety. In the bacteriological section, under the charge of Professor T. J. Mackie, there was an interesting exhibit showing the whole range of spirochaetal infections. The demonstration of the renal circulation in the human subject, in the foetus, and in childhood, and in various animals, given by Mr. D. M. Morison, attracted much attention. To obtain these specimens the aorta had been injected with coloured celluloid dissolved in acetone, and when this material had set the soft tissues were macerated away by means of hydrochloric acid, leaving the beautiful arborescent vessels. Dr. James Davidson showed a series of specimens illustrating different types of diseases of the liver, especially atrophic cirrhosis and acute and subacute yellow atrophy. Along with these were specimens of liver necrosis and cirrhosis produced experimentally in rabbits by means of coal tar. Very striking, too, were the paraffin sections of whole lungs in children, illustrating the processes of lobar pneumonia, bronchopneumonia, empyema, gangrene, pyaemia, and tuberculosis. Altogether the Pathological Museum was one of the best and most complete exhibitions of recent years.

A NEUROLOGICAL CONFERENCE.

SOMETHING like an international conference of English-speaking neurologists is taking place in London this week; it is composed of members of the American Neurological Association and the Section of Neurology of the Royal Society of Medicine. It was opened on the evening of Monday, July 25th, when the members attending the conference were received by Sir James Berry (President of the Society) and Lady Berry. During the evening Sir James Purves-Stewart, President of the Section of Neurology, gave a lantern lecture describing a visit which he had paid to the holy mountain of Athos, situated on one of the three prongs of the Chalcidice Peninsula projecting into the Aegean Sea. The district is famous for its monasteries and hermitages, founded and maintained by various nations belonging to the Eastern Church; some of them are of great antiquity. From this monastic republic women are barred, and the ban even extends to animals of the female sex, so that there are no cows for milk or hens for eggs, but from his own experience Sir James Purves-Stewart imagined that female insects were exempted! He gave a racy account of five days spent on the peninsula, during which, travelling along lonely mountain tracks or through dense forest, he contrived to visit thirteen out of the twenty monasteries. He found them rich in objects of devotion, but extremely primitive in hygienic and refectory arrangements, as did Curzon, who visited some of them in 1837, bought as many illuminated manuscripts as he could, and related his travels in a most fascinating book, *Visits to the Monasteries in the Levant*. The largest of the monasteries Sir James Purves-Stewart reached was founded in 961; in its palmy days it had 500 monks, but has now only 140. Each monastery lives its own independent existence, not fraternizing with the others, though to some extent in competition with them, especially over the possession of sacred relics. At one monastery was the mummified left forearm of St. John Chrysostom, while at other monasteries were his sacrum, his tibia, and one of his tarsal bones. The mummified right forearm of St. Andrew the Apostle, his tibia, his humerus, and the lower end of one femur were all under different guardianship. Then there was the ulnar bone of the woman of the well in Samaria, the right hand of the mother of the Virgin Mary, the lower jaw of John the Baptist, the lower jaw of St. Luke, the tibia of Zacharias, and the skull of St. Basil. Other relics, some of them reputed to be wonder-working, were the wood of the true cross, fragments of the red robe of Pontius Pilate, and various icons, said to have been painted by supernatural hands. Of the real artistic treasures on the peninsula the most noteworthy was a thirteenth century paten cut from a single agate. The rank and file of the monks appeared to be of subnormal intelligence; they belonged mainly to the peasant class, most of them were illiterate, their dull eyes flashed no religious fire, their waking hours were mostly occupied in the recital of prayers or in rest and contemplation in their cells. They had no intellectual or social life, and their only labour was to tend a few olive trees. They looked flabby and pale-faced, as if an occasional day's work would do them good. In the sick compounds the principal trouble was senile decay, but there were also monks suffering from dyspepsia and malaria, or from pulmonary or joint tuberculosis unrecognized or untreated. The impression he took away from the whole peninsula was of oppressive silence and mental stagnation. Some of the monks sat and thought; the great majority only sat! After the lecture the company adjourned to the library for music and refreshments. The serious business of the conference began on the following day, the morning and afternoon of which were occupied in the reading and discussion of short papers. On Wednesday there was a debate on the cerebellum, and on Thursday on sensory disorders in organic disease of the nervous system. These we hope to report, along with the Hughlings Jackson Lecture by Dr. Charles L. Dana, in our next issue.

WEST LONDON POST-GRADUATE COLLEGE.

THE statement recently made in the House of Commons by the Minister of Health describing a plan for making the West London the hospital of a post-graduate medical school lends special interest to the arrangements now and for a good many years existing at the West London Post-Graduate College. The hospital was founded in the year 1856, and incorporated by Royal Charter in 1894. It is situated on an island site 3½ acres in extent; the present front of the hospital is at one end of the area, which extends backwards from the main road for a considerable distance. During the last fifteen years the hospital has acquired the freeholds of all the houses on this site. The present hospital contains 226 beds, but its extension to provide between 400 and 500 beds is in contemplation. The calls made by the populous surrounding district on the limited accommodation of the present hospital are very numerous, and beyond its present resources. With the exception of St. Mary's Hospital, which lies to the north, it is the only general hospital west of the district served by St. George's Hospital, and there is now nearly as much of London to the west of Hyde Park Corner as there is east of that point; the town has been spreading westward at a great rate. The West London Hospital is easily accessible; there are a tube station and two Metropolitan stations within half a minute's walk, and omnibuses to all parts of London pass the door. Post-graduate instruction has been carried on continuously at the West London Hospital since 1893, and many thousands of medical men from all parts of the world have attended the classes and demonstrations there. The West London was the first hospital in London where the practice of the hospital was reserved strictly for qualified practitioners—men at first, but now women also; it is claimed that its Post-Graduate College was the earliest institution of the kind to be attached to a general hospital. The first dean and moving spirit at its inception was the late Mr. L. A. Bidwell. Under existing arrangements any qualified practitioner can attend the hospital practice for a week, a

month, three months, or a year, commencing at any time, but the teaching is divided into three sessions—October to Christmas, January to Easter, May to the end of July. At other times practitioners attend the ordinary hospital practice, but no special classes or demonstrations are given. Medical men in practice in the district can take out annual tickets at a reduced rate. Post-graduates are appointed to clinical assistantships in the various departments for periods of three or six months. These appointments are made by the house committee of the hospital on the recommendation of the college committee. There are four clinical assistants in the department of anaesthetics, who administer anaesthetics personally under the supervision of the honorary anaesthetists. It has always been the aim of the Post-Graduate College to give continuous instruction for graduates according to a definite weekly syllabus rather than to arrange intensive fortnightly courses; special courses can, however, always be obtained provided not less than six graduates intimate to the dean that it is their wish for such special instruction. A reading room and smoking room are provided.

CONTROL OF SCARLET FEVER.

A REPORT[1] recently issued by the Ministry of Health on some administrative aspects of scarlet fever consists, as its subtitle sets out, of a report on current English public health practice in the control and treatment of scarlet fever. It has been prepared by Dr. Allan C. Parsons with the assistance of a committee of medical officers of the Ministry of Health, from material mainly furnished by medical officers of health and superintendents of isolation hospitals. While the main object of the inquiry was to collect facts and figures relating to certain administrative methods employed by various local authorities for the control of scarlet fever, the personal opinions of the various medical officers of health and superintendents were invited on particular points. The facts, figures, and opinions are first set forth at length and summarized, and the conclusions of the officers of the Ministry of Health are given subsequently. The customary length of detention of scarlet fever patients in hospital and the effect of a longer or shorter retention on the occurrence of return cases or complications was one of the subjects discussed. The conclusion was that there is no good reason for prescribing a routine period of detention of more than four weeks in uncomplicated cases, while in others the period should be based upon the patient's general clinical condition. Although the number of scarlet fever patients who require the benefit of hospital treatment is held to form a very small part of those attacked, a very large proportion of the cases, especially in London and the larger cities, are at the present time removed to isolation hospitals. On this point the view expressed is that the right of admission should be restricted to severe cases and to those occurring in houses where other members of the family are engaged in milk-selling, clothes-making, and so on, or where there are several susceptible children. It is considered that, generally speaking, a close investigation of home conditions would probably show that more patients could be treated at home without harm to the public, their families, or themselves than is at present the practice. As to the question of terminal disinfection, Sir George Newman, in his preface, states that a large amount of popular "disinfection" is not only entirely inefficient, but wasteful and absurd. A comparison of the results as indicated by the percentage of secondary cases in towns and districts where traditional methods of disinfection are in vogue with those of towns and districts where they have been dropped or materially modified shows that there is not much difference. Other questions discussed in this interesting report are the circumstances which govern the policy of removal of scarlet fever patients to hospital, the employment of otologists on the staff of fever hospitals, the virtue of the Milne treatment, and the bacteriology of scarlet fever.

[1] Reports on Public Health and Medical Subjects, No. 35, Ministry of Health, London. H.M. Stationery Office, or through any bookseller. 6s. net.

GIFT OF AN INSTITUTE OF BIOCHEMISTRY TO THE MIDDLESEX HOSPITAL.

A WIDE vision and wise judgement, in conjunction with generous philanthropy, were shown by Mr. S. A. Courtauld when he gave £40,000 to the Middlesex Hospital for an Institute of Biochemistry, which is to be named after him. By this gift Mr. Courtauld has shown his keen appreciation of the great part science plays in practical medicine. Although it is only in quite recent years that the term "biochemistry" has become familiar, yet it is not a new science. The end of the eighteenth century was marked by Lavoisier's researches on the chemistry of respiration. Even earlier than this Willis made the illuminating discovery, by chemical examination, that sugar was present in the urine of the diabetic patient. The discovery of the microscope allowed the gap between plants and animals to be bridged. Minute organisms were found to be the causes of fermentation, putrefaction, suppuration, and many infective diseases. In the nineteenth century the famous researches of Dr. Richard Bright showed the relation between the blood and the urine in kidney complaints. Sir Alfred Garrod proved by biochemical study that gout is associated with excess of uric acid in the blood. In more recent years chemical methods have been applied to many physiological problems, and some of the great discoveries biochemistry has given us have already passed into the routine of medical practice. Nevertheless, it was not until 1912 that analysis of the blood was made use of in clinical medicine, but since then the chemical pathologist has rendered valuable help to the clinician. Professor E. C. Dodds has informed us that in the year 1921 87 specimens were sent to the biochemical department from the hospital for a report; in 1925 the number was 12,467. This great increase in the work of the department has been handicapped by lack of space. The new Institute of Biochemistry now founded will therefore be heartily welcomed by all officers of the hospital, and also by scientific investigators everywhere. The institute will work in conjunction with the hospital on the one hand, and with the Bland-Sutton Institute of Pathology on the other. The proceedings at the ceremony at the Middlesex Hospital on July 20th, when Mr. Courtauld laid the foundation stone, were opened by H.R.H. Prince Arthur of Connaught, chairman of the board of governors, who, after welcoming the visitors, expressed the gratitude of all concerned to Mr. Courtauld for his wise and liberal gift. Sir John Bland-Sutton then gave an address on biochemistry in relation to medicine, in which he outlined the meaning and growth of this department of science, and concluded by expressing the hope that a discovery might one day be made within the walls of that laboratory which would make the world gape with astonishment. Mr. Courtauld then inserted in the cavity prepared in the foundation stone a glass vessel containing, among other things, certain preparations of internal secretions made by processes devised in the Department of Biochemistry of the Bland-Sutton Institute of Pathology. Mr. Courtauld then proceeded to lay the stone, having first been presented with a replica of an ancient Graeco-Roman spatula by the architect, Mr. Alner W. Hall, and with a fifteenth century Italian bronze pestle and mortar by a representative of the builders, Messrs. Holland and Hannen and Cubitts. A vote of thanks to Mr. Courtauld, proposed by Mr. S. G. Asher, chairman of the council of the Medical School, and seconded by Mr. A. E. Webb-Johnson, the honorary

treasurer, was enthusiastically carried. The Institute of Biochemistry is to be a five-floored building containing laboratories fully equipped with all requirements.

THE GOLD COAST.

THE Gold Coast owes its name to the joy with which early explorers detected grains of gold mixed with the sand of the rivers. Its prosperity is now due to the trade in cocoa. In 1925 it furnished nearly half the world's supply of cocoa, and if the adjacent territory of Nigeria is included, fully half. The next largest exporters are Brazil, Ecuador, and San Thomé. The name "Gold Coast" is now generally understood to mean the British Colony, which includes a vast territory in tropic Africa, much larger than was indicated by the fringe of red marked on the maps of the last century, for it embraces the Gold Coast proper, Ashanti, the Northern Territories, and the British Mandated Territory of Togoland. The Governor, Sir F. G. Guggisberg, has recently issued a review of the events on the Gold Coast from 1920 to 1926, together with a forecast for the years 1927 and 1928. It gives a picture of an active administration, in close touch with the natives, the planters, and traders. The political organization of the country is described, as is the manner in which the native chiefs are supported in their authority, and serve to inform the colonial administration of the course of events. The chiefs are the popular representatives in a country where there is no place for plebiscites. Large expenditure has been incurred to encourage trade; two fine harbours have been built, railways laid, and roads cut and their surfaces treated with tar. Water supplies have been established, with water rates in towns and tickets for water in the country. There are telephones and telegraphs, the former being the more used in a country where many of the minor officials are illiterate. But of most interest to us is the growth of measures for the public health. The old makeshift hospital barn with its leaking roof is gone, and there is now a really efficient headquarters of medicine and surgery, and one that has been so planned as to be capable of "indefinite expansion." Sufficient land has been obtained for the construction of the future medical school, with all the necessary accommodation for students, not omitting recreation grounds. In reckoning the accommodation needed the authorities have looked far ahead, and propose that this medical school shall serve all the British West African colonies. A scheme has been drafted and is now under the consideration of the Secretary of State. It is hoped to secure a full medical training for African medical students, besides continuing to furnish "junior African medical officers," and also to train nurses and midwives. Some indication of the need is shown by the death rate of infants in the colony, which in some places is over 400 per 1,000 births. Note is made of a difficulty that arose out of the appointment of a fully qualified native doctor to the charge of a township where lived some twenty Europeans. These desired that the local doctor should be a European, and a question was asked in the British Parliament. The position has not been changed, and the Governor defends it on the ground that there is a white doctor in the next town thirty miles away on the railway. The medical staff of the colony numbers sixty-seven, and three of them are natives. The number of cases of tuberculosis which come to light is increasing annually, but steps are being taken which it is hoped may prevent further spread. A start has been made in the treatment of leprosy by the formation of a lepers' camp on a small scale. The death rate of the European officials has fallen from 20.6 per 1,000 in 1903 to 12.8 in 1924, while during the same period the invaliding rate has fallen from 65.1 to 21.7 per 1,000. The colony produces, not gold, but cocoa. The Governor declares the first aim of the Government's agricultural policy to be "the protection, improvement, and development of our staple product—cocoa."

[1] *The Gold Coast: A Review of the Events of 1920-1926 and the Prospects of 1927-28.* By His Excellency the Brigadier-General Sir Frederick Gordon Guggisberg, K.C.M.G., Governor, etc. Accra. 1927. (Roy. 8vo, pp. 347.)

GRENFELL OF LABRADOR.

THE KING has conferred the K.C.M.G. upon Dr. William Thomason Grenfell in recognition of his medical missionary work for thirty-five years in Newfoundland and on the Labrador coast. The announcement of this was made by the Governor of Newfoundland on July 25th, at the ceremonial opening of the new Grenfell Hospital at St. Anthony, Northern Newfoundland, which has recently been erected at a cost of £30,000. Sir William Grenfell, who was born in 1865, received his medical education at Oxford and the London Hospital, where he was house-surgeon to Sir Frederick Treves. Since the commencement of his work in connexion with the Mission to Deep Sea Fishermen in Labrador in 1892, he has brought about the building of four large hospitals, seven cottage hospitals, two orphanages, four public schools, and numerous other institutions; he has also raised an endowment fund of £200,000 for the maintenance of the work. During the war he came to Europe and served with the Harvard Surgical Unit. While in this country it occurred to him that his experience gained in Labrador and North Newfoundland as to clothing in hard weather would be of value to the British army, and he wrote for this JOURNAL a paper, illustrated by drawings, on clothing against cold, which was published in our issue of January 15th, 1916 (p. 86). Sir William Grenfell has already received many distinctions; he was made C.M.G. in 1906, has received honorary degrees from Harvard and Toronto, and was awarded the Murchison bequest of the Royal Geographical Society in 1911. He is a Fellow of the College of Surgeons of America, as well as of the Royal College of Surgeons of England.

THE DISPOSAL OF THE BODIES OF STILLBORN CHILDREN.

WITH the coming into force of the Births and Deaths Registration Act, 1926, several questions have arisen with regard to the disposal of the bodies of stillborn children in particular circumstances. These circumstances are probably not of common occurrence, but when the questions do arise they are of considerable importance. It is necessary, therefore, to have a clear idea of what the law now requires, and to remember that not the recent Act alone, but also the Cremation Act and Regulations, determine this matter. Requirements arising out of the new Act have been fully set out in an article in the JOURNAL of June 18th last (p. 1118), and in a note in the SUPPLEMENT of July 2nd. These need not be repeated in detail. It may be said, however, that every stillbirth must now be registered; and that no body of a stillborn child may be buried "in a burial ground" without the prior production of a registrar's certificate, or, if an inquest has been held, of a coroner's order. There is no legal necessity for the production of such a certificate or order if the body be buried elsewhere than in a burial ground, and there are no restrictions on such disposal of the remains of stillborn children. It would obviously be a wise and proper precaution, however, on the part of any person so disposing of the remains, to insist on the production of such certificate or order. With regard to the disposal of the body of a stillborn child by cremation, the position is as follows. Section 8 (1) of the Cremation Act, 1902, and Regulation 3 of the Cremation Regulations, 1920, provide that no cremation of human remains shall take place except in a crematorium, of the opening of which notice has been given to the Home

Secretary and in accordance with the regulations made by him. The expression "human remains" here includes stillbirths, and such remains therefore cannot lawfully be disposed of by cremation except at places and in the manner indicated. In this case also the production of a certificate, in pursuance of Section 7 (4) of the Births and Deaths Registration Act, 1926, that the stillbirth has been duly registered is necessary before the cremation of the remains of a stillborn child can be permitted.

THE TRAFFIC IN OPIUM AND OTHER DANGEROUS DRUGS.

WE have received from the Home Office a copy of the report to the League of Nations by the British Government on the traffic in opium and other dangerous drugs for the year 1926. The report is one of a series furnished annually to the League of Nations, in accordance with a scheme of the Opium Advisory Committee of the League, which, under Article XVIII of the Treaty of Versailles, concerns itself with the traffic in dangerous drugs. This is the first occasion on which such a report has been communicated to the press. It deals mainly with the system of control of importation, exportation, manufacture, and sale of opium (raw, "prepared," and medicinal), morphine, heroin, cocaine, etc., which was instituted, at the suggestion of the British Government, under the International Opium Convention concluded at The Hague in 1912. As explained in the BRITISH MEDICAL JOURNAL (March 12th, p. 481, and July 16th, p. 107), the later Opium Convention concluded in February, 1925, at Geneva is as yet inoperative, owing to insufficient ratification, and the Hague Convention remains the only international instrument for the control of traffic in these drugs of addiction. Reference is made in the report before us to the better control of internal traffic in these drugs in accordance with new regulations, framed in 1926 under the Dangerous Drugs Acts, whereby medical tribunals have been instituted to which the Home Secretary may refer cases of suspected illicit use, more strict measures have been taken to prevent addicts obtaining supplies from more than one doctor, and records are required to be kept by all doctors, dentists, and veterinary surgeons of purchases of dangerous drugs. Statistics are given which show that the amount of morphine and its salts manufactured in, and exported from, Great Britain was less in 1926 than it was a few years ago. Only two firms in Great Britain—both in Edinburgh—are licensed to manufacture morphine, while seven firms were, in 1926, licensed to manufacture medicinal opium. Interesting figures are given of the estimated consumption of opium, morphine, heroin (diacetyl-morphine), and cocaine in hospitals in Great Britain in 1925. They are as follows: opium 750 lb., morphine 1,149 ounces, heroin 403 ounces, and cocaine 1,669 ounces. It appears that in 1926 95,173 lb. of raw opium were imported into Great Britain from India, as against 40,885 lb. from Turkey, and that Indian opium is now the chief source from which morphine, its salts, and derivatives, are manufactured in this country; some 3,040 lb. of Indian opium were last year exported from Great Britain to the United States. The report states that "information received by His Majesty's Government during the year (1926) shows that the illicit traffic in drugs continues on a large scale." Two seizures of British-made morphine, dispatched through Czechoslovakia on import certificates issued by its Government, were made in Shanghai by the Chinese postal authorities. Another seizure was made of the huge amount of 8,200 ounces of heroin at Hong-Kong in the luggage of a passenger on a steamer from Europe, dispatched from Switzerland via Marseilles. There is good ground for believing in the existence of powerful syndicates operating in Hong-Kong, Amoy, Tonkin, Shanghai, etc., in this illicit commerce. In March, 1926, an Englishman was arrested in London in unlawful possession of twelve 1-lb. tins of cocaine, smuggled into this country from Germany. Likewise at Kingston, Jamaica, a case of opium, consigned, it was alleged, under certificate to Bluefields, Nicaragua, was confiscated. The Government of Nicaragua pronounced such importation illegal, and vouchsafed the information that the amount of opium consigned was so great that even in fifteen years it could not have been consumed for legitimate medical purposes. These extensive smuggling operations which are exposed, to say nothing of those which escape detection, serve to emphasize the urgent need there is to restrict the production of these dangerous drugs —at their source—to medical and scientific requirements only.

PUBLICITY.

SIR THOMAS HORDER has had occasion to protest in the columns of an evening paper against what he describes as a garbled account of some remarks he made during the MacAlister Lecture delivered to the newly founded London Clinical Society on July 7th. The publication drew a letter from a correspondent of the evening paper, which showed that this reader, at any rate, had misapprehended at least one opinion expressed by Sir Thomas Horder, and this seems to have led him to make his protest. We are given to understand that the officers of the society had originally invited the wives and friends of doctors to the lecture, and that a notice to this effect appeared in the lay press, though not as the result of any action of the society. At Sir Thomas Horder's request the society afterwards sent out a notice to the newspapers stating that the lecture was not open to laymen. The president of the society informs us that he is confident no lay reporter was present. His inference is that the report published in the evening paper must have been supplied by a medical man. If this conclusion be correct, we can only agree with Sir Thomas Horder in thinking this action regrettable; we must assume that the chairman took care to explain to the meeting that the lecture was not to be reported, but would be published in full in the *Lancet*, where it appeared on July 16th. Any medical man present at the lecture ought to have respected the wish of the society and of the lecturer. It would then have been open to the newspapers to quote what Sir Thomas Horder actually said, or, had they preferred a shortened version, they would have found it in our issue of July 16th (p. 107). We also think that it would have been only courteous for the evening paper to wait until it had an authorized report or abstract. It is very easy in technical matters to fall into an error of interpretation, and it could not really matter very much to the lay reader whether his newspaper gave him Sir Thomas Horder's opinion on a technical matter in one week or in the next.

WE regret to announce the death, on July 26th, of Sir H. Bryan Donkin, at the age of 82. We hope to publish a notice of his life in an early issue.

THE University of Edinburgh is about to lose two of its most distinguished professors. Professor G. Lovell Gulland has, under the age limit, retired from the office of physician to the Royal Infirmary, to which he was appointed in 1911, and has also resigned the chair of medicine, to which he was appointed in 1915. Professor James Cossar Ewart, M.D., F.R.S., who has been professor of natural history since 1882, has retired also. His numerous researches have been concerned chiefly with fish and fisheries, and with the history of the development of horses, a subject which at one time led him to investigate telegony.

LISTER CENTENARY CELEBRATION AT EDINBURGH.

It was held to be fitting that in the centenary year of Lord Lister's birth the meeting of the British Medical Association in Edinburgh should include the celebration of the centenary. Lister was house-surgeon at the Royal Infirmary, Edinburgh, 1854-55, lecturer on surgery, Edinburgh School of Medicine, 1855-60, assistant surgeon, Royal Infirmary, 1856-60, and Regius Professor of Clinical Surgery, University of Edinburgh, 1869-77.

The meeting was held in the McEwan Hall of the University on the evening of July 20th. The vast building, up to the dim recesses of the upper gallery, was filled, and it may be wondered how many heard the speeches, in spite of microphone and amplifiers. The Chairman was the Chancellor of the University, the Earl of Balfour, and the procession to the platform, headed by the university and city maces, included the most prominent figures in the academic and public life of Edinburgh, as well as the President of the British Medical Association, the Chairmen of Council and of the Representative Body, and other principal officers, and distinguished guests of the Association from foreign countries and the dominions. A very large number of those present wore academic robes, and these with the bright dresses of the ladies made the spectacle one of great brilliance. A programme of organ music preceded the celebration.

Lord Balfour's Tribute.

The EARL OF BALFOUR said that it was unthinkable that the British Medical Association should meet in Edinburgh in the Lister centenary year without calling together an assembly such as this to do honour to the great surgeon. Though Lister was not born north of the Tweed, yet it was in Scotland that he matured his great discoveries, it was in two Scottish universities (Glasgow and Edinburgh) that he laid the solid foundations of his immortal fame, and to Edinburgh, both in the earlier and later part of his Scottish career, he always turned with affectionate regard. Lister was a very great man, but, like every other great man, he owed part of his greatness to the fact that at the moment at which his career began his peculiar and special gifts found their peculiar and special opportunity. That he would have been a great surgeon at any period of the world's history, that he would have added lustre to the pursuit of medicine in whatever age and land he had been born, the speaker did not doubt; but he was enabled to write his name in indelible characters upon the history of medicine in no small degree because he was a contemporary of two other great men—Simpson and Pasteur. Of his debt to Pasteur little need be said. Pasteur's position in the history of civilization was fixed and immortal. But it was impossible also to estimate the position of Lister in surgery without noting the relation of his work to Simpson's discovery of chloroform. Without the discovery of chloroform it would have been impossible to perform, even under the most perfect aseptic conditions, the operations which had added so greatly to the knowledge of disease and diminished so greatly the sufferings of mankind. On the other hand, the very discovery of chloroform, the very impetus it gave to attempting operations which before that time no surgeon had dared to attempt, augmented the appalling mortality which in pre-Listerian days inevitably haunted the operation room. The two discoveries—Simpson's and Lister's—mutually assisted one another. Without anaesthetics the operations could not have been carried on; without the Listerian method the operations, though carried on, would have had with terrible frequency a fatal result. It was necessary that the dreams both of Simpson and of Lister should be fulfilled before the benefits which either of these two great ornaments of the Edinburgh school of medicine brought to mankind could be fully reaped. They had heard from high authorities lately how greatly surgical operations had increased the knowledge of the nature and the course of disease, and the method by which certain diseases could be dealt with; but surgery without anaesthetics was not the surgery which afforded such knowledge, and surgery without aseptic treatment was too often the harbinger of death rather than the cause of health and recovery. To these great men a double debt was due. It was not merely the debt of individual patients to the skill of physicians, it was the debt which all men owed for that steady accumulation of knowledge and steady growth in the art and practice of healing which had made the generation to which the speaker belonged so remarkable in the history of medicine. And it was not merely a new mode of dressing wounds for which they had to be grateful, nor the discovery of an anaesthetic; it was for the combination of the two. Without both the great men who co-operated in this result, the result could hardly have come about at all; each was in a sense dependent on the other.

It was a terrible page in the history of medicine, agonizing to the eyes of the helpless surgeons themselves, in the era before Lister's work was established. It made one's blood run cold to learn what was happening even in the best hospitals of the capitals of Europe and America. In those days a feeling of dread took possession of every surgeon, and the patient suffered from terrors based on less knowledge, but just as vivid. In the Centenary Volume just published[1] there was one terrible narrative which, he confessed, he could not read without emotion—namely, the description of a hospital, he thought in Vienna, where one ward had so awful a reputation that women used to implore with tears that to that death-trap they might not be sent. The conditions of those days were such as to make one feel that of all the benefactors of sick mankind the greatest benefactor of all must be Lister himself, who wrought deliverance. Lord Balfour confessed to some surprise that Lister's discoveries were not immediately hailed by the whole profession with the approval which was now universal. It was very easy to be wise after the event, and nobody need boast the possession of such facile wisdom. But he was profoundly puzzled at the first reception of Lister's work by his colleagues. The progress of his ideas gained ground at different rates in different countries and centres of medical education, but in no place, not even Glasgow and Edinburgh, was it as quick as one would have expected in view of the general admission that the existing state of things was a scandal to the medical profession. After all, these experiments of Lister were not laboratory experiments, they were not carried on in some scarcely known centre of learning, they were not couched in unknown language, they were not taught in obscure schools. The very surgeons who refused to accept this new thing had full opportunity of seeing the effects of it, and yet for some reason which to him was quite unintelligible they remained unconverted. After all, putrefaction was a very obvious phenomenon, and if it was possible to see by walking across a passage or a courtyard putrefaction with all its horrors in one ward, while another was free, one would have supposed that such an appeal to experience no man could have disregarded. But this was not the case, and he hesitated to express any vehement condemnation of that frame of mind when he remembered that Sir James Simpson was himself one of the doubters. Of that great man he would never speak except with profound reverence. As a youngster he (Lord Balfour) had known him. Simpson did endless acts of kindness to him and to his family. He was one of the most lovable as well as one of the ablest of men. But it was strange that he who had been one of those to point out most eloquently the horrors which attended the surgery of his day should have died in 1870—certainly in the early days of the Lister regime—unconverted. He would that Simpson had survived a few years more, or that, to desire the impossible, he could have lived until that present hour, to see how Lister's discovery along with his own would carry their names forward in a common fame to the remotest posterity.

These commemorations of great men (Lord Balfour concluded) were becoming frequent, and he thought them useful. He had himself been personally concerned in at least six during the last few months—Bacon, Newton, Faraday, Beethoven, Richard Bright, and now Lister, a catalogue of great names. The services which these men rendered to mankind could not be weighed or even compared. Yet even in that splendid catalogue the name of

[1] BRITISH MEDICAL JOURNAL, July 16th, p. 100.

Lister stood out supreme in this respect—that, by his forethought, his determination to reach a certain goal, the inspiration and genius which enabled him to grasp at once the full significance of Pasteur's discovery, he of all those famous ones had the inestimable blessing of having by his efforts immediately and directly diminished to an extent quite incalculable the preventable sufferings of mankind. That was surely the most glorious tribute which could be paid to any man, and he rejoiced to think that Lister lived long enough to see the full value of his own work and to enjoy the grateful appreciation of his fellows.

Four short addresses followed.

Sir W. WATSON CHEYNE, Bt., F.R.C.S., speaking as an old house-surgeon and assistant of Lister, perforce recapitulated to some considerable extent the tribute he paid to Lister at the memorial meeting at King's College Hospital last April.[2] He gave a description, for the benefit of the many lay people in the audience, of the conditions which brought about putrefaction in wounds, and contrasted the picture of the pre-Listerian hospital with the hospital of to-day. He told how Pasteur's work opened the way to Lister for the solution of the mystery as to the cause of putrefaction, and sketched something of the laborious development of technique which followed. He concluded with some remarks on Lister himself and the great influence which he exercised upon his students. He always treated them with great kindness and consideration, and was ever ready to help anybody in need.

Professor TUFFIER, K.B.E. (Paris), expressed his gratitude to the British Medical Association for enabling him to be present on that occasion. He was one of those who could speak from personal experience of the pre-Listerian era and afterwards, but his most cherished recollection of Lister dated back to Pasteur's jubilee celebration in the theatre of the Sorbonne, where there were assembled the leaders of science from every quarter of the globe. Never before had such a collection of great men been gathered into one group, but Lister and Pasteur stood there in the midst, the cynosure of all eyes. Everyone knew their record of achievement, and everyone saw them in wonderment and awe. He confessed that he was unable to restrain his emotion at that spectacle. Lister brought about a revolution in surgery all over the world. His discovery could be said to have affected the destiny of the human race. Before Lister he himself knew of a series of cases in which there were as many deaths as there had been amputations. It was impossible to estimate the number of lives which had been saved in consequence of this discovery. Lister in his search after truth and his service to mankind represented the highest ideals which any profession could uphold, and in making this acknowledgement and in presenting greetings and homage to the University of Edinburgh, Professor Tuffier said that he spoke not only for himself but for all French surgeons.

Professor HARVEY CUSHING said that it had been given to few so to identify themselves with great benefactions to human kind that the mere mention of their names would for ever recall, not only the man, but his legacy. On a May morning a few weeks previously he had stood at the portal of the Lincoln Memorial in Washington and gazed upon the figure of the emancipator. As he read again the familiar phrases of Gettysburg there came to his mind how comparable were Lincoln and Lister. Lister freed man from the shackles of sepsis, Lincoln from those of slavery. How different were the men, their medium of service, and the manner by which the seemingly inevitable was thrust upon them. Who had made the greatest gifts to mankind, those who had left an idea that had supplied, like the utterances of Christ, what minds had yearned for, those who had added to man's comforts and found ways to lessen hunger and want, those like Lincoln who had freed men from bondage, or like Lister from the horrors of suppuration? One answer certainly could be made, that only when the gift required great self-denial, and only if the giver were one that walked uprightly and worked righteousness and spoke the truth in his heart, would he, like St. Francis, come to be canonized and for ever blest. When issues were critical circumstances often so combined as to bring the right man at the right time to the right place. An individual was caught up in the vortex of a revolution in thought, and was placed unquestionably at its very centre. It was idle to speculate whether the opportunity made the man, as was perhaps true of Lincoln, or the man the opportunity, as was more apparently the case with Lister. What really mattered was that the conjunction should take place. The opportunity to do something of lasting benefit to one's fellow men doubtless lay before all; yet even if they had the imagination to realize it, they lacked the courage to grapple with it, the tenacity to hold it, and the persuasiveness and unselfishness to secure converts and disciples. Lister, horrified at the condition in which he found surgery, deliberately elected to crusade against the most evident obstacle in the way of its advance. Were he and Lincoln accidental or inevitable? Suppose they had been born fifty years earlier or later, would they have remained unknown, or was their form of genius bound to find an outlet for its expression at any time and in any place? Was it chance alone that focused the anti-slavery movement on Lincoln, or on Lister the movement to banish sepsis? Or were they both swept along as part of a greater all-embracing Will, each in his different sphere singled out by the finger of destiny for the significant role? What preparation had either of them? The one was an obscure backwoods lawyer, the very product of the soil; the other had a different background, to be sure, but he was a sensitive man, to whom strife was hateful, and yet he was surrounded by opposition and misrepresentation and compelled to make a fight for truth. Why? Simply because he had set out innocently to answer certain questions. Why does the pupil dilate? Why does the blood coagulate? Why do wounds fester? He found the answer, and felt that all others to whom human lives were entrusted must be made to believe. It was doubtful whether blind fortune could have lifted from the crowd any more practical, humane, and earnest men equally far removed from any motive of self-interest who could have filled, as Lincoln and Lister did, their difficult and lonely places. What each of them had to do had to be done largely single-handed. Faith they had, soon conviction, ere long experience, and with the sharp mordant of experience both of them faced situations without precedent, and by the aid of instruments found or devised by themselves arrived at their goal over untrodden ways. Each of them had the common sense and the flexity of purpose not to let the real issue be submerged in the public mind through fruitless discussions about its consequences, but each was his own most severe critic, and each had the honesty to admit what there might be of truth in diverse opinion. An awkward civilian during times of great military achievement, Lincoln had left behind him the memory of grace higher than that of mere breeding. Lister was to the manner born, and survived to see a grateful world at his feet. One of these men for an ideal, the other for an idea, one by proclamation, the other by demonstration, wrought their different achievements. In beginning his peroration Professor Harvey Cushing quoted the extract from Lincoln's speech inscribed on the monument at Washington, which, he said, "put into words for a people what Lister for a profession might have said with a little change":

> With malice toward none, with charity for all, with firmness in the truth as God gives us to see the truth, let us strive on to finish the work we are in; to bind up the people's wounds, to care for him who shall have borne the battle, and for his widow, and his orphan—to do all which may achieve and cherish a just and lasting peace among ourselves and with all nations.

"So may our profession" (Professor Cushing continued) "reap from Lister's life something far more precious than pride in his accomplishment and the satisfaction of claiming him as our own—namely, that spiritual harvest which comes from the example of an unblemished character—for kindness, meekness, and comfort were in his tongue. Though lives die, the life is not dead; and the memory of lives such as these will be reverently and forever shared not by a profession alone, not by a nation alone, but by the universal brotherhood of man."

Professor JOHN STEWART (Halifax, Nova Scotia) said that simplicity was the keynote of Lister's life and work. He was simple in his tastes, simple in his methods, simple and clear in his thinking. He loved music, especially

[2] BRITISH MEDICAL JOURNAL, April 9th, p. 690.

Scottish songs, he loved children, and, what was perhaps not generally known, he had a keen sense of humour. It was a delight to hear him tell a humorous story with the appropriate mimicry and gesture. What some thought a certain aloofness was really the shyness as of a child. Many of his associates felt that there was a certain atmosphere about Lister which distinguished him. He was anything but cold. He was fond of having his students, clerks, and dressers to dine with him, and many of them remembered the hospitality of the host and his charming conversation. Professor Stewart recalled the occasion when he dined last with Lister. At this time the boyish heartiness had gone, a grave sweetness had taken its place. His sister-in-law—he was already a widower—was his housekeeper, and the speaker was the only guest. After Miss Syme had left the table, Lister drew up his chair and they talked for nearly two hours, among other things about the then recent development of the diphtheria antitoxin, and the failure of tuberculin to fulfil what was expected of it. To the suggestion that he should write a book on the beginning and development of antiseptic surgery, Lister shook his head, saying that he did not now feel equal to much work. He said, "I can say with the apostle that I desire to depart, and I feel this very deeply when I think of my dear wife." While the main cause of his depression was loneliness due to the death of Lady Lister, another cause was his regret at the elaborate ritual which was replacing his own simple routine, and yet another was the want of recognition of the value of his early researches in histology, the action of the nervous system, and the nature of inflammation. Nothing in his memories of Lister impressed him more than his confidence in the continuity of life. "It is our proud office," he said once, "to tend the fleshly tabernacle of the immortal spirit," and in a letter he wrote on the death of Lady Lister he said, "May you and I so live during the rest of our earthly life that we may rejoin her!"

LORD BALFOUR, in closing the meeting, announced that the prize for the best essay on the influence of Lister had been awarded to Mr. George W. Gale of Edinburgh, and a second prize to Mr. Russell Love of Melbourne. He also stated that the University and the Royal Colleges had conceived the idea of erecting an institute in memory of Lister, to contain pathological and other departments, and any assistance which could be given to this great project would be gratefully acknowledged by those authorities.

ACUTE RHEUMATISM IN CHILDREN: ITS RELATION TO HEART DISEASE.

THE Ministry of Health has issued this week a report on acute rheumatism in children in its relation to heart disease.[1] Several inquiries have recently been made into this subject, and the report should be read in connexion with that of the Medical Research Council on "Social conditions and acute rheumatism," the two reports of the special subcommittee of the Science Committee of the British Medical Association published in our SUPPLEMENTS for July 3rd, 1926, and April 16th, 1927, and Dr. Reginald Miller's notes on the several reports, which appeared in our issue of May 28th last (p. 952).

The object of the present inquiry is stated to be: to examine the advisability of further organization for the supervision, treatment, and after-care of children of the poorer classes suffering or convalescent from the various manifestations of acute rheumatic infection, and especially the provision for them of special institutional accommodation. The report, therefore, deals primarily with existing disease, and with preventive measures only in so far as they are directed against the sequelae of the disease, and especially the cardiac sequelae. Although our knowledge of the etiology of rheumatism is extremely vague at present, as the discussion of the bacteriology contributed to the report by Dr. Eastwood shows, several facts of fundamental importance bearing on the policy to be adopted in dealing with the disease have been long recognized or have been brought to light by the inquiries mentioned. Thus it is known that the disease may be so insidious in the early stages as to be readily overlooked unless carefully searched for, hence the necessity for adequate routine examination; that the grave sequelae of rheumatism may, in almost every case, be avoided if proper after-treatment is not neglected. Hence we are permitted to conclude that the prevention of its disastrous cardiac sequelae is a question of ways and means; that rheumatism cannot be satisfactorily treated in poor homes, and so, if treatment is to be successful, the children must be received into suitable institutions. Poor homes, but not the poorest, seem to be in some way generators of rheumatism, as appears to be clearly revealed in a comparison of different types of school; for it is in the public elementary schools that rheumatism abounds, whereas the private preparatory and public schools are exempt from the disease. The reform of the poor home probably involves questions of general culture, education, the standard of living, and kindred subjects, and its consideration would afford useful employment for our politicians.

Statistics of Heart Disease.

The main inquiry embraced in the report falls under three headings: (1) the census of existing rheumatic disease, (2) the present machinery for dealing with the cases, and (3) the additional machinery required. With regard to the census, there are approximately 5,000,000 children in average attendance in public elementary schools in England and Wales. Somewhat more than one-third of these were subjected to routine medical examination in 1925, the actual total being 1,798,397; and a further 820,953 were inspected as "special cases"—that is, selected by teachers as specially needing examination. Information as to the incidence of organic heart disease in all these children is not available, but in 1924 an analysis was made of the defects revealed in a large sample (598,167) examined in London and in twenty-four large districts representative of the whole of England and Wales, during the course of routine examination. Of these, 4,285 (0.7 per cent.) were considered to have organic heart disease; 3,231 (0.5 per cent.) of them being referred for observation only, whilst 1,054 (0.2 per cent.) required treatment. In addition, 1.1 per cent. of the whole number examined were considered to have functional heart disease, which in 0.1 per cent. was severe enough to require treatment. In Scotland the corresponding percentage of organic heart disease is reckoned at 0.52, and in New York at 1 per cent. We may therefore take it that an incidence of 0.5 per cent. of heart defect for which only supervision is required and 0.2 per cent. of heart defect sufficiently severe to require treatment are conservative figures for the incidence of organic heart disease in children actually in attendance in ordinary elementary schools in England and Wales. These figures do not tell us what percentage of the cases are due to rheumatic infection, and it is difficult to obtain definite information on this point. Some authorities place the proportion of deaths due to heart disease which are ultimately traceable to rheumatism as high as 50 per cent. of the total deaths from heart disease, a figure which Dr. Glover, who deals with this part of the subject in the report, considers to be too high. He suggests that 40 per cent. is probably a safer figure, in which case we must ascribe some 25,000 deaths annually to heart disease of rheumatic origin in England and Wales. In one American series of statistics rheumatism was ascertained to be the cause of the heart disease in 449 out of 1,052 cases; in another, 39.8 per cent. were of rheumatic origin. These statistics are instructive as affording some idea of the amount of heart disease which it is, as before said, considered possible to prevent almost entirely or arrest before attaining a serious degree of severity.

Treatment and After-Treatment.

With regard to the existing machinery for the treatment of cases of rheumatism and their after-treatment, the report takes the metropolitan district as an example, and

[1] Ministry of Health Reports on Public Health and Medical Subjects. No. 44. London: H.M. Stationery Office, or through any bookseller. 1927. Price 1s. 6d. net.

quotes Dr. Pugh's report to the Metropolitan Asylums Board for 1925:

"There are six London children's hospitals; in these the total accommodation (in 1924) was 706 beds, which received 10,096 in-patients, of whom 377, or 3.7 per cent., suffered from rheumatism or its effects. The pressure on the accommodation of voluntary hospitals calls for a somewhat rapid passage of patients, and the average stay varied from 20 to 30 days. The stay of rheumatic cases is generally longer; at the Hospital for Sick Children, Great Ormond Street, it averaged 60 days in 1919-20. Some children's hospitals have their own convalescent homes and are able to transfer a small number of their rheumatic cases to them; a few cases are transferred to special country homes of limited accommodation; sometimes it is necessary to send these patients home to await vacancies. Physicians have long lamented the necessity for the premature return of rheumatic cases to their homes."

Then there are the general hospitals and the Poor Law infirmaries, which, with the six children's hospitals, are estimated to receive a total of 2,938 such in-patients annually. The children who are admitted as in-patients to these institutions are appropriately treated during the acute stages of their diseases; most of the children, however, who attend the hospitals are not ill enough, or not fortunate enough, to secure admission as in-patients, and must perforce attend as out-patients. It is this class of out-patient child which gives rise to the main part of the practical problem calling for solution, and in them, probably, is produced the main bulk of preventible rheumatic heart disease. The following statement of the Almoner of Guy's Hospital bears on this aspect of the question.

"The number of children with subacute rheumatism attending as out-patients at intervals would be difficult to ascertain. It must, however, be very large, and it would appear that these early cases should be given as much consideration as the acute cases. The children who are seriously ill are usually referred to me by the physicians with a request to provide immediate nursing treatment under skilled supervision, followed by prolonged convalescent treatment under skilled medical supervision. Few of these children can be admitted to such a hospital as this owing to the pressure on beds here, which precludes the possibility of blocking many beds with these very prolonged cases. Immediate admission to the infirmary for treatment during the acute stage, with a view to transfer when fit to a Metropolitan Asylums Board hospital, such as Queen Mary's or The Downs, has seemed to us to be the best solution of the problem at present; but unfortunately experience shows that the children do not always go to the Metropolitan Asylums Board institution, and we have record of cases in which children have returned to this hospital, for perhaps the third time within a few months, with symptoms of acute rheumatism, having been nursed for short periods and then discharged to their homes. The few that are admitted to the wards here also present a problem as, being the more severe cases, transfer to a suitable institution is especially desirable as soon as the acute symptoms have subsided. Unfortunately the voluntary societies have neither the accommodation nor the funds for many such long and difficult cases."

This aspect of the problem has been investigated by Mrs. Forest Smith, who contributes a report on the conditions obtaining at St. Thomas's Hospital during the year 1926. In the out-patient department during the year 508 children under 12 years of age attended; 22 per cent. of these already had cardiac damage and an additional 21 per cent. had symptoms of threatened cardiac involvement; 34 acute cases were admitted to the wards and 14 to infirmaries or other hospitals; 68 with more chronic conditions were sent (often after considerable delay owing to long waiting lists) to special institutions or convalescent homes, but no fewer than 392, or 77 per cent., many of whom would have been recommended for admission had there been any accommodation available, were treated at home. This is a favourable instance, great efforts having been made at St. Thomas's to make every possible provision for these rheumatic cases. Mackenzie in 1908 laid down that the rheumatic patient should be kept strictly in bed until there is assurance that the condition is quite abated, even though six months may elapse before this result is brought about. A year before, G. A. Sutherland had recommended six months' rest in bed, or longer if necessary, followed by sanatorium treatment for one or two years. Recent opinion is in favour of substituting "graduated rest" for complete rest, and so gradually allowing the child to resume carefully graduated and supervised minor activities.

The chief medical officer, in his annual report for 1913 to the Board of Education, stated that "perhaps the best method of dealing with children with heart disease is to send them to a residential school for a period of prolonged treatment." Several schools of this type have been established in recent years—namely, the Edgar Lee Home at Willesden, the Kurandai Home in Sussex, St. Mary's Home, Broadstairs, and the Baskerville Residential School, Birmingham; these have to be reckoned among the existing machinery already referred to, and supply a total of 188 beds. In addition, the Metropolitan Asylums Board reserves 16 convalescent beds at Carshalton and has recently allotted 56 beds at Highwood Hospital, Brentwood; at Downs Hospital the Board has, on an average, some 80 beds always filled with rheumatic cases.

Recommendations.

With regard to the provision of further machinery, the best example of a scheme for the treatment of rheumatism is considered to be that in operation in Birmingham. All rheumatic children discovered in the course of routine medical inspection in the schools in that city are reported to the rheumatism bureau at the Children's Hospital as cases needing supervision or the advice of a consultant. If acutely ill they are admitted to the Children's Hospital for a period which may include treatment at the Moseley Hall Convalescent Hospital for Children. When convalescence is established they are sent to the Baskerville Residential School, which has 94 beds. The subacute and chronic cases are placed on a waiting list for the Baskerville School or are referred for periodic examination by the consultant. The cases needing supervision are visited by nurses or examined by medical officers of the education authority. After discharge from Baskerville the case is reported to the school medical officer of Birmingham, and its after-care and supervision are undertaken by the nurses and medical officers of the education authority working in close touch with the "rheumatism bureau," or in special cases by the consultant himself. Supervision is continued until school-leaving age, when the medical history and disability, if any, are reported to the juvenile employment bureau.

Here is, in fact, an almost complete scheme which is linked in close and effective liaison, nominally by the rheumatism bureau, but actually by the willing and close co-operation of many persons and committees. The whole work is co-ordinated and controlled by a specialist, who is consultant to the Children's Hospital and Baskerville School and also a medical officer of the Education Committee.

England and Wales.

EPSOM COLLEGE.

PRINCE ARTHUR OF CONNAUGHT attended the celebrations in connexion with the seventy-fourth anniversary of Founder's Day at Epsom College on July 23rd, and opened the new sports pavilion, which has been erected at a cost of £3,000. Previous royal visits to the College were paid in 1855, when it was formally opened by the Prince Consort; in 1895, when the then Prince of Wales laid the foundation stone of the Lower School; and in 1903 by King George, who was then Prince of Wales. The new pavilion contains separate changing rooms for the home and visiting cricket and football teams, very good washing facilities, including shower baths, ample accommodation for spectators, and a well placed scoring box. Part of the building is in use as the school tuckshop. Prince Arthur was received by a guard of honour of the Officers' Training Corps, and, after members of the council had been presented to him in the library, he distributed the prizes in the Big School, which has now been panelled in oak. The head master, Mr. A. C. Powell, in his report, stated that the school now contained 350 boys, and as soon as accommodation was available the number would be increased to 400 boarders in eight houses, without a preparatory school. This contrasted sharply with the position a year ago, when only about 250 boys of public school age were in residence. Commenting upon the exceptionally good scholastic successes of the previous year, he mentioned in particular the fine achievement of E. A. Marsh in winning the senior open science scholarship at Jesus College, Cambridge, and in passing the examination for the B.Sc.Lond.

while at school at the age of 18. The award during the year of 45 school certificates would be a worthy record for an institution twice the size of Epsom. The Officers' Training Corps had distinguished itself by winning the Surrey Schools' Shooting Cup; the College had also been placed eighteenth out of 71 public schools in the competition for the Ashburton Shield. Two new entrance scholarships, one of £120 and the other of £105, had been made available by special bequests. Plans for the future included the building of a new sanatorium at an estimated cost of £30,000, and an additional fives court. Prince Arthur emphasized the value of public school training in the preparation for life in the world; the combination of study and athletics enabled English boys to face hopefully the demands of all spheres of life, and especially those of the medical profession. Though medicine promised financial fortune to only a few, it provided opportunities for great and unselfish work. He then passed to the consideration of the possibilities opening up for successful emigration, particularly to South Africa; a boy required about £1,500 to cover fully all the liabilities, including his fare to that country, his special training there in agriculture, and the ultimate purchase of land, but no parent could find a better way of investing that amount of money.

Welsh National School of Medicine.

On July 16th (p. 112) we reported that the suggestion had been put forward that a compromise might be effected, on the lines of the system in force at University College, London, between those who desire to see the School of Medicine for Wales a separate college of the University, and those who wish it to be a department of University College of South Wales and Monmouthshire, Cardiff. Further negotiations and discussions have taken place, and it seems to be thought probable that an arrangement may be come to. At a meeting of the Court of the University last week the matter was again discussed and was referred to the University Council to continue the negotiations.

The Humane Killer.

It seems a pity that the Animal Defence and Anti-Vivisection Society has not, in the past, devoted more of its energies to the introduction of humane slaughter of animals for food instead of making unveracious attacks on medicine. Through the courtesy of the Duchess of Hamilton and Miss Lind-af-Hageby, a representative attended the inauguration on July 14th of a model abattoir at Letchworth. A large number of visitors were present. The institution appears to have been built by voluntary subscription; it is proposed to turn it into a company. The Animal Defence Society will retain supervision of the methods employed, and hopes to open in London an establishment for the sale of the products of the abattoir. The inauguration began with a brief speech by the Duchess of Hamilton, followed by addresses, of which the first was by the Right Hon. Noel Buxton, formerly Minister of Agriculture, who said that there were 20,000 slaughtering places, mostly remote and obscure, in this country. The only method of advance in humane killing was to press the question on Parliament, using the public health as an argument. Dr. Heiss, director of the public abattoir at Straubing, Germany, said that in Germany uncertified meat which did not come from public abattoirs was not approved for public sale. Professor Dahlström, of the Royal Veterinary College, Stockholm, stated that in Sweden the humane killer was always used except in the case of pigs for the English market. He did not consider that the Jewish method of slaughter could be compared with the use of the humane killer. Before the meeting the visitors inspected the premises, which are very well arranged and equipped. In addition to the slaughterhouses there are cold storage accommodation, rooms for scalding and chilling, a lard room, and a sausage room. It is intended to add a building for dealing with by-products. As one of the objects of the institution is to raise the mental and moral standard of the butcher, there is a lecture hall for his instruction, a neatly panelled dining room, and accommodation for change of clothes and baths.

At the close of the addresses the audience was given the alternative of taking tea or viewing a demonstration of the use of the humane killer. A large majority of those present, including numerous ladies, accepted the latter alternative. It happened that a party of London butchers who had come to the meeting were the first to reach the small pig-slaughtering chamber. The lady organizers, however, were intent on exhibiting their methods to the foreign delegates. An altercation arose, but the butchers stood their ground, and ultimately proposed a truce under which they were to witness the death of the first of the three pigs. This was agreed to, but the crowd seeking admission was so great that the butchers had some difficulty in extricating themselves. The organization of the meeting was not good, and the employees were perhaps unaccustomed to perform their work in the presence of so large a company. But the whole installation seemed to be a praiseworthy attempt to set an example in humane slaughtering, and, under the supervision of a properly qualified veterinary expert, should be a success.

A Reading Nursing Scheme.

The Reading Council for Nursing Services administers a scheme under which societies with State-insured or voluntary members can ensure nursing attendance for their sick. The report of the council for the year ending March 31st shows that nursing services were then available for 36,620 members of various societies, a number which has increased since that date to 46,800. The expenses of the council are met by an annual contribution from the societies at the rate of fourpence a member. The number of visits paid by the nurses during the year was 4,851; the average cost for each visit was something less than one shilling; and the total cost to each society was one and two-thirds pence a member. In the case of insured persons even this small cost was reduced by a State grant. Consequently at the end of the year's working there was a considerable balance returnable to the subscribing societies. The cost of administration was very small, being under five per cent. of the total income. There is no restriction as to the area in which the nursing services can be obtained; and last year one of the members received nursing services as far away as Yorkshire. The council endeavours to carry out its work through local nursing associations, though it does not restrict it to these associations; where such associations are not available it may make payments to hospitals or to recognized nurses called in by patients. The council also acts as the local "clearing house" for the collection of vouchers and the payment of accounts in connexion with the Queen Victoria Jubilee Institute (London) scheme. The council urges the contributory societies to make the fullest possible use of its services, and there seems to be no doubt that it is carrying on most valuable work with the strictest economy in administration.

Port of Manchester.

The medical officer of health of the port of Manchester, in his annual report for 1926, states that 177 cases of sickness came under notice during the year. There was no outbreak of cholera, plague, or yellow fever, either in the port or in Manchester bound ships, but two cases of smallpox occurred, one of which was removed to hospital at Hong-Kong and the other isolated on board. The cases of malaria numbered eight, of pulmonary tuberculosis seven, of pneumonia five, of enteric fever two, and of other specified infectious diseases one each. The number of rats destroyed on shipboard was 2,344, and on dock premises 2,656. Except in twenty-six ships fumigated with sulphur dioxide, the methods of destruction were trapping and poisoning. Hydrocyanic acid was not employed. Of 1,349 classified rats, 712 were grey, 347 black, and 290 brown. No plague-infected rats were discovered. Of several consignments of frozen fish coming from Newfoundland in January the first two had been carried in boxes on deck and ten and a half tons were condemned. Later consignments, stowed in refrigerators, arrived in good condition. Early in the year the s.s. *Manchester Producer*, running into bad weather in the Atlantic and sustaining

damage to her rudder, took fifty-one days in crossing. Her full cargo of apples, of 600 tons weight, became unsaleable and was condemned, being removed by rail to the sludge tip near Thelwall for disposal. Of 428 Canadian cattle which she was bringing over 176 had to be disposed of at sea.

Ireland.

PURE MILK SUPPLY.

PROFESSOR R. J. JOHNSTONE, F.R.C.S., M.P. (Queen's University, Belfast), speaking at the Unionist School at Portrush on public health, with special reference to milk supplies, described milk as a perfect food, containing everything that was necessary for human life. It was also a perfect food for bacteria and microbes, which multiplied at an appalling rate, especially when the milk was warm. The milk as sold for human consumption was full of microbes which had been introduced after the milk came from the cow. The problem, therefore, was how to preserve the milk as far as possible in the state in which it came from the cow. After mentioning various ways in which milk became infected, Professor Johnstone described several methods which the Government should adopt to secure a clean milk supply. The first thing was to take samples of the milk as supplied to the consumer. The second was to inspect the places where the milk was produced to see that the cowsheds were well ventilated. But even when the authorities had taken samples, inspected cowsheds, and tested cows, reliance had, after all, to be placed on the goodwill of the milk vendor. Apart from regulations, there was a need to create in the producer a desire to keep his cowshed clean and his cows under hygienic conditions. The way in which they could create that desire was by showing him that there was money in it. Another important factor was the education of public opinion in favour of having clean and pure milk.

TRANSFER OF MEDICAL OFFICER IN ATHLONE.

By a majority of one vote the Westmeath County Health Board transferred Dr. W. H. Coen from the position of medical officer of Moate dispensary district to the combined office of medical officer of Athlone No. 1 dispensary and district hospital. Under Section 5 of the Local Authorities Officers and Employment Act the local bodies, whilst they have no power to make new appointments, may transfer existing medical officers to a vacant position subject to the sanction of the Minister of Local Government and Public Health. In connexion with Dr. Coen's appointment and recent sanction, Sir James Craig, M.D., questioned in the Dail the policy of the Minister. The Tyrone County Board of Health, he said, had appointed a medical man who had had but two years' service to a large hospital and dispensary over the head of another candidate, who had had twelve years' experience and a distinguished university course. The late Minister had refused to sanction the appointment, but immediately the new Minister came into power sanction was given. The whole matter had caused the greatest possible dissatisfaction and anxiety amongst the medical profession; in sanctioning the appointment the Minister was not carrying out the intention of the Act.

Scotland.

MEDICAL REFEREES.

THE Scottish Board of Health has appointed Dr. Alexander James Muirhead and Dr. Hugh Miller to be district medical officers (medical referees) in their department. Dr. Muirhead is an M.D. of Edinburgh. He has held several appointments as medical officer to local authorities and other bodies, and was local medical referee for a large assurance company. During the war he served as surgeon on a number of H.M. ships, and also in naval hospitals. He has been for several years in private and panel practice, and has had experience of statutory committees in connexion with the Insurance Acts. Dr. Miller is an M.B., Ch.B. of Glasgow, and a Fellow of the Royal Society of Tropical Medicine and Hygiene. He was for a number of years deputy medical officer of the fever hospital and Poorhouse Hospital, Hamilton. During the war he was medical officer in various hospitals at home and abroad, and subsequently acted as medical referee under the Ministry of Pensions. He has also done a considerable amount of referee and medico-legal work, and is a member of various medical committees. He has been for a number of years engaged in private and panel practice, and has been a valued member of the Council of the British Medical Association, chairman of the Scottish Committee, and member of other Association committees.

EDINBURGH SICK CHILDREN'S HOSPITAL.

At the annual meeting of the Royal Edinburgh Hospital for Sick Children Sir John R. Findlay, who presided, remarked that for the first time for many years the total expenditure during the year had exceeded the total income, both from subscriptions and from legacies, and in consequence the amount of invested funds was smaller than it had been a year ago. He considered that the amount contributed by the charitable public in Edinburgh contrasted unfavourably with the support received from country districts. The ordinary income for the year had been £11,677, and the ordinary expenditure £17,188. He referred to the scheme for the institution of an orthopaedic centre in Edinburgh, and said that the directors of the Children's Hospital were watching developments with interest and with every desire to assist in the movement. The report by the directors of the hospital showed that the number of cases treated in the wards last year was 2,956, as compared with 2,968 in 1925. Of these, 1,593 were medical and 1,248 surgical. The average daily number of patients in hospital during 1926 had been 115, and the average duration of treatment seventeen days. The total attendances at the out-patient department had been 25,604. A large number of patients had been treated in the sunlight department, and this had involved the provision of further accommodation, but many patients had derived striking benefit from it.

EDINBURGH VETERINARY COLLEGE.

At the annual distribution of prizes of the Royal (Dick) Veterinary College, Edinburgh, Baillie Dr. T. G. Nasmyth presided and the Lord Provost distributed the prizes. The chairman remarked that the veterinary surgeon had, to a certain extent, been displaced by the advent of the motor car, and the consequent diminution of veterinary work among heavy draught horses and carriage horses, but a new sphere had been opened up by the association of the veterinary practitioner with public health administration in safeguarding meat and milk supplies, and the appointment of county veterinary inspectors afforded a new and wide field of work. The college had gradually developed a post-graduate side to its work, with a view to preparing men for specialist appointments. The college, however, was fully alive to the fact that the specialist formed only the smaller part of the profession, and that the general practitioner must remain its backbone.

South Africa.

[FROM OUR CORRESPONDENT IN CAPETOWN.]

THE HEALTH OF CAPETOWN.

THE annual report of the medical officer of health of the city of Capetown (Dr. T. Shadick Higgins) for the year ended June 30th, 1926, states that: "Until the year 1924-25 births and deaths were recorded on two bases—namely (1) 'crude,' including all births and deaths which occurred in Capetown, and (2) 'corrected for visitors,' obtained from the 'crude' figures by deducting births and

deaths of non-residents which occurred in Capetown (outward transfers). There was not available complete information about births and deaths of Capetown residents which took place outside Capetown (inward transfers), and it was therefore not possible to obtain figures fully corrected for inward as well as outward transfers. The director of census recently brought into operation a system whereby in regard to Europeans only he furnishes to medical officers of health lists of outward and inward transfers (births and deaths), and 1924-25 was the first year in which this information was available for the Capetown statistics. In making the corrections for those transfers, the figures of the director of census and statistics are accepted for inward transfers, but for outward transfers the figures obtained by the medical officer of health from the local registration returns are taken in preference to the lists supplied by the director of census and statistics."

The information from the director of census and statistics in regard to inward transfers applies only to Europeans, and therefore does not enable the statistics as to non-Europeans or the total population to be corrected for inward transfers. It is considered to be desirable that the system should be applied to the non-European population also.

The census of population which was taken at midnight between May 4th and 5th, 1926, considered in conjunction with the census of May 3rd and 4th, 1921, has enabled more satisfactory estimates of the population of the municipality and of its constituent wards to be made for the year under review than was the case in the immediately preceding years. This is especially so in regard to the non-European population, the estimate of which was previously not on a satisfactory basis. In the country generally the intermediate census of 1926 was confined to Europeans, but arrangements were made to include non-Europeans also in Capetown and certain other municipalities. The decennial census of 1921 included both Europeans and non-Europeans.

The provisional results of the census of 1926 show the population of the municipality of Greater Capetown to be as follows: Europeans 112,548, non-Europeans 99,052—total 211,600. The last-named figure includes 16 Europeans and 4,042 non-Europeans, representing the occupants of the native location at N'dabeni, not included in the municipal area in 1921. The municipal area amounts to 37,847 acres, and the length of the main road passing from one boundary of the municipality to the other is about twenty-five miles.

The births registered during the year 1925-26 numbered 7,106 (2,524 European, 4,580 non-European, and 2 of unknown race). The birth rate per 1,000 population is therefore as follows: European: 22.65 (uncorrected), 20.93 (corrected for outward transfers), 22.01 (corrected for outward and inward transfers). Non-European: 49.55 (uncorrected, 48.55 (corrected for outward transfers). All classes: 34.82 (uncorrected), 33.47 (corrected for outward transfers). The difference between the number of births and deaths is the natural increase in population. This for all classes amounted to 3,329 (uncorrected) and 3,388 (corrected for outward transfers); for Europeans 1,242 (uncorrected), 1,256 (corrected for outward transfers), and 1,339 (corrected for outward and inward transfers); and for non-Europeans 2,088 (uncorrected) and 2,133 (corrected for outward transfers). It will be seen from these figures that in spite of their higher death rate the natural increase of the non-European section of the population exceeded that of the European section by 760.

The number of male births per 100 female births (excluding births in Capetown which did not belong thereto) was 96.96 amongst Europeans and 99.56 amongst non-Europeans. In 1924-25 the corresponding figures were 104.1 and 106.3; in 1923-24, 114.2 and 106.5; and in 1922-23, 98.8 and 107.7. The percentage of illegitimate births to total births (corrected for outward transfers) was 4.67 amongst Europeans and 24.20 amongst non-Europeans. The number of stillbirths registered during the year was 458, of which 89 were European, 368 non-European, and 1 of unknown race.

The deaths registered during the year 1925-26 as having taken place in Capetown numbered 3,777 (1,282 European, 2,492 non-European, and 3 of unknown race). The death rate per 1,000 of population is therefore as follows:—European: 11.50 (uncorrected), 9.66 (corrected for outward transfers), 10.00 (corrected for outward and inward transfers). Non-European: 26.91 (uncorrected), 25.52 (corrected for outward transfers). All classes: 18.51 (uncorrected), 16.87 (corrected for outward transfers). Both the European and non-European death rates for the year under review are the lowest recorded since unification in 1913.

"It will be observed . . . that 1925-26 was a favourable year in regard to mortality from measles and whooping-cough, and also from apoplectic and respiratory diseases. The decline in deaths from enteric fever which had shown itself in recent years has continued, the mortality from that disease in 1925-26 being the lowest on record. From diphtheria, however, the mortality continued somewhat high. The mortality from tuberculosis was less than in the previous year, but still, especially among the non-Europeans, failed to show the diminution compared with the previous ten years that might be hoped for. From diarrhoeal diseases the mortality was high amongst non-Europeans, but amongst Europeans rather low compared with previous years. The deaths from heart disease, rheumatic fever, and influenza were above the average, and the recorded deaths from cancer continue to increase."

The deaths of children under the age of 1 year registered during the year 1925-26 numbered 957 (161 Europeans, 793 non-Europeans, and 3 of unknown race). The infant mortality rate per 1,000 births is therefore as follows:—Europeans: 65.18 (corrected for outward transfers), 62.37 (corrected for outward and inward transfers). Non-Europeans: 175.49 (corrected for outward transfers). All classes: 138.21 (corrected for outward transfers). The European rate for the year under review is the lowest on record, but the non-European rate was lower in the years 1921-22 and 1924-25.

Correspondence.

BRITISH MEDICINE.

SIR,—Sir Robert Philip's admirable address and the excellent paper by Professor Hey Groves in your issue of July 23rd suggest to me the desirability of putting forward two considerations impressed upon me by a recent survey of the history of medicine, namely:

1. There is no intellectual calling in this country which has rendered more conspicuous service to the Empire, in the last hundred years, than British medicine.

2. Is it not time that British medicine, as much as any other responsible intellectual calling in this country, made herself mistress in her own house?—I am, etc.,

Exeter, July 24th. W. GORDON.

MINERS' NYSTAGMUS.

SIR,—The contributions from Drs. Fergus and Robson in your issue of June 18th (pp. 1092, 1094) on miners' nystagmus are very interesting and open up a vast field for speculation. Yet two facts seem to stand out: (1) The class of miner generally affected is the actual collier. (2) The suggestion of retinal exhaustion as the actual cause—that is, fatigue on action and recovery after rest.

The fact of the incidence of the disease prior to the strike and the great lessening of the number of cases following the industrial upheaval is too potent an argument to be neglected. People who so strongly resented the action of these men during and since the strike might find in this some reason to pause and reconsider their position. It would be interesting to know whether observers had noted the condition of the pupil in these cases. They quote other evidence of disturbance of the sympathetic system.—I am, etc.,

C. W. T. BALDWIN, M.R.C.S., L.R.C.P.

London, S.W.9, June 29th.

SIR,—I can assure Drs. Haldane and Llewellyn that I have read the reports very carefully, but I do not find in them any statement about the candle-power deemed to be necessary for the prevention of nystagmus. I have not committed myself to any view as to the cause of nystagmus, but think there is no evidence that it is due to defective illumination, and I have found as a matter of experience that the brighter the light the worse the nystagmus. Up till now, so far as the area in which I work is concerned, the electrifying of the pits has not been successful in eliminating nystagmus.

Professor Collis, I think, has made a slight error, in so far as he did not take account of the fact that there was no nystagmus in the American pits prior to the introduction of the electric cap lights approved by Dr. Haldane.

Dr. Gordon Wilson's letter is an interesting one. The question, perhaps, that he would bring before his own mind is this: Why should occupational fear only act in some mines and not in others? There are six safety-lamp pits in the Lanarkshire district in which there has never

been a case of nystagmus. The disease is rife in some pits; in others it occurs but only very occasionally.—I am, etc.,

Glasgow, July 18th. FREELAND FERGUS.

*** We referred this letter to Dr. J. S. Haldane, who has made the following reply. With its publication we must bring this correspondence to an end.

SIR,—If Dr. Freeland Fergus will look again at our paper under the subheading "Illumination," he will see that we estimated that in order to prevent miners' nystagmus the illuminating power of a hand safety lamp would need to be increased to about three candles, as compared with only about 0.7 given by the present electric lamps. An improved flame safety lamp without a mantle, giving three candles, was shown at the meeting where our paper was read, and another, with a mantle, giving nine candles. It is true that the surface of the filament of an electric lamp is far more brilliant than that of a flame lamp, but the extent of surface in the flame lamp is so immensely greater that a good flame lamp gives much more light than an ordinary electric lamp of the present type.

As regards American pits, it is only in recent years that the use of safety lamps has become widespread; and the safety lamp used is the electric cap lamp, which, for the reasons explained in our paper, gives a far better illumination than the hand electric lamps used in this country.

It does not seem to me that there is even a semblance of real evidence for the statement that "the brighter the light the worse the nystagmus."—I am, etc.,

Oxford, July 22nd. J. S. HALDANE.

ADRENALINE EFFECTS AT THE MENOPAUSE.

SIR,—Dr. Wyse, in the BRITISH MEDICAL JOURNAL for July 16th (p. 115), raises some interesting objections to my conclusions concerning the causation of "flushing" at the menopause, which were published as a preliminary communication in the BRITISH MEDICAL JOURNAL for July 2nd (p. 14).

He suggests that since the "flushings" pass off within a few years, at a time when the ovaries are secreting less than while the flushings were complained of, my theory that the flushings are caused by an unrestrained action of the suprarenals, the internal secretion of the ovaries being deficient or absent, is open to objection. Our knowledge of the endocrine system at the present time shows that there exists not only an organic harmony between the glands, but a compensatory interaction also. My experimental work has shown that the hyperactivity of suprarenals in women at the menopause is increased in intensity if the removal of the internal secretion of the ovaries is abrupt, for example, in those women in whom the ovaries have been removed by operation.

I maintain, therefore, that the disturbance of the suprarenals at the menopause is a temporary phenomenon which passes off when the endocrine system in general exercises its compensatory activity, and makes up for the sudden disturbance caused by the loss of the internal secretion of the ovaries.—I am, etc.,

JOHN H. HANNAN, M.D.Cantab.

London, W.1, July 16th.

DIGITALIS IN INFLUENZA.

SIR,—The address by Mr. E. B. Turner in your issue of July 16th (p. 93) on influenza, emboldens me to call attention to the immense value of digitalis in epidemics where signs of myocardial trouble usually appeared, as was the case in 1889 and the following three or four years. Acute cardiac dilatation was common on assuming the erect position, usually on the third day. I have had three cases in a morning. I treated every case of influenza for several years with digitalis, and with other remedies, and attributed the entire absence of deaths—in very fatal epidemics—to this drug.

The rapid pulse observed in the last two epidemics has been noticed to coincide with enlargement or tenderness of the thyroid, and this has been more or less successfully treated by tincture of iodine, with or without tincture of digitalis. I found a tendency to relapse, however, and the iodine had to be administered for several weeks.—I am, etc.,

Winchester, July 16th. F. R. HUMPHREYS.

DRUGS FOR SLEEPLESSNESS.

SIR,—The following case may be of interest in support of the view that tolerance to veronal does not become established.

I was called to see a man of 57, at 5.30 on a Tuesday morning, as his wife was anxious about his very stertorous breathing, and she was unable to rouse him. She told me he was in the habit of taking veronal, and thought he was so used to it that he could take large doses. She was afraid he had taken some the night before but was not certain. I was unable to rouse him to consciousness, but could stimulate him to movements of his limbs. Reflexes were normal.

I treated him for veronal poisoning, washing out the stomach and colon, and giving strychine, digitalis, and caffeine hypodermically every four hours. At mid-day he was much more comatose, and movements could no longer be stimulated. At 6 p.m. his breathing became impaired by oedema of the lungs. This yielded during the night to atropine injections, but pulse and respiration became very poor at times.

By the morning his condition had somewhat improved, but he showed no signs of consciousness. I was able to feed him three times during the day by the stomach tube with milk, coffee, and brandy. He was also having saline and glucose by rectum. He had no return of oedema of the lungs. During the night his condition remained much the same, the pulse fluctuating in character. The next morning (Thursday) he was obviously not so well, and in spite of stimulants, camphor, caffeine, and strychine, his respiration and pulse failed, and he died at mid-day.

During the first day I was able to have analysed the remains of a powder in a tumbler, which proved to be veronal; and 5½ ounces of urine which I drew off was found to contain 6 grains of veronal. It was estimated that he had taken about 50 grains.

This patient was of a cheerful disposition and had no worries. He had been to the theatre the night before, but went to bed with a headache, and expressed the hope that he would have a good sleep, as he frequently did not sleep well. It appeared that he had obtained a little store of veronal in France, of which he had not taken all. He had told his friends how well it suited him, and that he could take more than most people as he was used to it.

There was no question of suicide, but apparently he had been determined to have a good night's sleep, and had put too much faith in his tolerance to veronal.—I am, etc.,

Eastbourne, July 6th. A. DEANE.

AN AUSTRALIAN DIPLOMA IN TROPICAL MEDICINE.

SIR,—I was much gratified at the mention on page 485 of the JOURNAL dated March 12th, 1927, that one of the medical officers (Dr. R. L. Bellamy) of the Papuan Medical Service had been the first to obtain the Diploma of Tropical Medicine at the University of Sydney, Australia. However, I was sorry that the Territory of Papua was not referred to. Australia is responsible for the administration of two tropical territories: (*a*) the Territory of Papua, which, until 1907, was named British New Guinea, and (*b*) the Territory of New Guinea, which, until the war, was known as German New Guinea. The first territory, that of Papua, is governed simply as a territory of Australia, and is not under mandate. It was from this territory that Dr. Bellamy came. The territory of New Guinea is held by Australia under mandate. There is a certain amount of friendly rivalry between the two territories, and some here regret that your article on page 485 rather implies that Dr. Bellamy, the first Australian D.T.M. and H., came from the mandated Territory of New Guinea (that is, late German New Guinea).—I am, etc.,

W. M. STRONG, M.D., B.C.,
D.T.M. and H.Camb.,
May 26th. Chief Medical Officer, Territory of Papua.

Obituary.

DR. VINCENT JOHN MAGRANE, who died on June 17th, at his residence in Darlaston, was born in 1858, and received his medical education in Dublin, where he obtained the diplomas of L.R.C.P.I., L.R.C.P.S.I., and L.M. in 1881. In the following year he commenced private practice in Darlaston, and in 1894 became a member of the local district council, of which he was chairman in 1897 and 1910. He was appointed medical officer of health for Darlaston in 1910 and held this position at the time of his death. He took an active interest in the local Volunteers, which he joined in 1884; five years later he received a commission as lieutenant, was promoted captain in 1893, and major in 1906. He commanded a company in South Africa in 1902 and held the Queen's South African medal with two clasps, the Volunteer Long Service medal, and the Volunteer Officers' Decoration. He was a member of the British Medical Association.

Dr. CHARLES GASKELL HIGGINSON, who died on June 26th, aged 68, received his medical education at Manchester and Newcastle; he took the degree of M.A.Lond. in 1881, obtained the diplomas M.R.C.S., L.R.C.P. in 1896, the L.M.S.S.A.Lond. in 1907, and graduated M.D.Durh. in 1912. About 1900 he became specially interested in the sanatorium treatment of pulmonary tuberculosis, and held a post for some time on the staff of Crooksbury Sanatorium. He published a life of Bodington and short practical contributions on sapraemic glysosuria and other medical subjects. He was a member of the British Medical Association. A colleague writes: Dr. Higginson was a relative of the inventor of the Higginson's syringe, and also of James and Harriet Martineau. He was a man of brilliant literary gifts and was much in request at literary gatherings. He never forgot a friend or an old patient, and often went out of his way to do a service to an old comrade; he contributed freely to movements of public utility. Those intimate with him were impressed by his generosity, modesty, courage, sound common sense, and thoughtfulness for others.

THE LATE ARTHUR BOLLES LEE.—Some extra copies of the portrait of the author of *The Microtomist's Vade-Mecum* which was issued with the last number of the *Journal of Pathology and Bacteriology* are available, and may be had by anyone interested on application to the editor at 17, Loom Lane, Radlett, Herts.

Universities and Colleges.

UNIVERSITY OF OXFORD.

AT a congregation held on July 23rd the following medical degrees were conferred:

B.M.—W. N. Dickenson, O. Hooper, R. C. Probyn-Williams, J. W. Pugh, H. W. Allen, C. Charleson, J. L. Glover, P. F. Cluver, Irene M. Titcomb.

UNIVERSITY OF CAMBRIDGE.

AT a congregation held on July 14th the following medical degrees were conferred:

M.CHIR.—R. S. Corbett.
M.B., B.CHIR.—G. L. Alexander, G. M. Tanner, H. F. Griffiths, H. P. Nelson, E. S. Page.
B.CHIR.—V. C. J. Harris (by proxy), H. S. Allen, C. F. Watts, H. M. Elliott, C. E. Kellett, D. N. R. Jones, R. Watson.

UNIVERSITY OF LONDON.

A MEETING of the Senate was held on July 20th, the Vice-Chancellor (Sir William Beveridge) being in the chair.

London School of Hygiene and Tropical Medicine.

The London School of Hygiene and Tropical Medicine (Departments of Bacteriology and Immunology and of Epidemiology and Vital Statistics) was admitted as a school of the University. The date of the appointment of Professor W. W. C. Topley and Mr. Major Greenwood to the respective University Chairs of Bacteriology and Immunology and of Epidemiology and Vital Statistics tenable at the school, was changed from August 1st, 1928, to October 1st, 1927.

External Students.

The Senate have placed on a permanent basis the Advisory Service for External Students, which has been working experimentally for the past three years. Under this scheme external students may consult the External Registrar on any matters relating to their studies for external degrees.

Diploma in Biology.

It was resolved to institute an Academic Diploma in Biology.

Appointments.

Professor E. H. Kettle, M.D., B.S.Lond., M.R.C.P., was appointed, as from October 1st, 1927, to the University Chair of Pathology, tenable at St. Bartholomew's Hospital Medical College. He studied at St. Mary's Hospital Medical School and obtained the M.B., B.S.Lond. in 1907 and the M.D. in Pathology in 1910. In 1920 he was appointed Pathologist and Lecturer in Pathology at St. Mary's Hospital and, later, Director of the Department of General and Special Pathology to the newly-formed Institute of Pathology and Medical Research. Since 1924 he has been Professor of Pathology and Bacteriology in the Welsh National School of Medicine, Cardiff.

Dr. Bronislaw Malinowski, D.Sc.Lond., Ph.D.Cracow, was appointed to the University Chair of Anthropology, tenable at the London School of Economics.

Miss D. L. Mackinnon, D.Sc.Aberd., was appointed to the University Chair of Zoology, tenable at King's College.

Mr. W. H. Linnell, Ph.D., M.Sc.Durh., was appointed to the University Readership in Pharmaceutical Chemistry, tenable at the School of Pharmacy.

Sir Holburt Waring, M.S., F.R.C.S., was appointed representative at the nineteenth French Congress of Medicine, to be held in Paris in October, 1927.

Doctorate in Physiology.

The following Doctorate was conferred:—D.Sc. in Physiology Mr. A. S. Parkes, University College, for a thesis entitled "On the occurrence of the oestrous cycle after *x*-ray sterilization."

Results of Examinations.

The following candidates have been approved at the examinations indicated:

M.D.—*Branch I, Medicine:* W. L. Ackerman, Doris M. Baker, J. Bevan-Jones, T. S. Blacklidge, R. T. Brain, Grace D. Chambers, A. C. M. Elman, J. A. James, A. T. Jones, G. Klionsky, Marjorie Low, H. V. Morlock, Jean L. Smith, Hilda N. Stoessiger, H. C. C. Taylor, J. Whitby, Caroline I. Wright. *Branch II, Pathology:* Joan M. Ross, Doris M. Stone. *Branch III, Psychological Medicine:* G. C. Berg, May K. Ruddy. *Branch IV, Midwifery and Diseases of Women:* F. C. Alton, H. Burt-White (University medal), Dorothy N. L. Leverkus. *Branch V, State Medicine:* E. K. Macdonald.
M.S.—*Branch I, Surgery:* D. H. Patey.

UNIVERSITY COLLEGE.

The following awards have been made in the Faculty of Medical Sciences at University College:—Entrance Scholarship: F. R. Bettley. Cluff Memorial Prize: Margaret D. Wright. Anatomy: Gold medal (senior class), Flora Hargreaves; silver medal (junior class), D. Davidson. Histology and Embryology: Prize equivalent to silver medal, Albertine L. Winner and D. Davidson (equal). Organic and Applied Chemistry: Silver medal, L. G. Norman. Physiology: Sharpey Scholarship, L. E. Bayliss; gold medal (senior class), Flora Hargreaves. Pharmacology: Silver medal, Flora Hargreaves.

LONDON (ROYAL FREE HOSPITAL) SCHOOL OF MEDICINE FOR WOMEN.

The Council has awarded the following scholarships and bursaries for session 1927-28, to the value of £1,455:—St. Dunstan's Medical Exhibition: Miss S. C. B. Walker. Isabel Thorne Scholarship: Miss C. L. Taylor, Miss F. D. Wride. Mrs. George M. Smith Scholarship: Miss N. J. Gould. Mabel Sharman Crawford Scholarship: Miss L. Reder. Dr. Margaret Todd Scholarship: Miss D. E. Courtney. Sarah Holborn Scholarship: Miss C. Steer and Miss H. C. Tester. Fanny Butler Scholarship: Miss M. C. Goodchild. Alfred Langton Bursary: Miss C. A. Conway. Ellen Walker Bursary: Miss V. H. King. Flora Murray Bursary: Miss M. E. Roberts. Dr. Edith Pechey Phipson Post-Graduate Scholarship: Miss G. H. Newell, M.B., B.S.Lond., and Miss D. M. Scott, M.B., Ch.B.Edin.

SOCIETY OF APOTHECARIES OF LONDON.

Proposed New Diploma.

THE Examinations Committee of the Society of Apothecaries of London has drawn up a report which will shortly be presented to the Court of Assistants of the Society. The report recommends the institution at an early date of a diploma indicating specialized knowledge of the subjects of ante-natal care, midwifery, and infant welfare; it would be granted to registered medical practitioners who had been engaged in post-graduate study of the subjects, both in practice and theory, and a high standard of professional knowledge would be guaranteed by a stringent examinational test. The diploma would be specially adapted to the needs of the general practitioner who wishes to show that he possesses a knowledge and experience in these subjects of a higher grade than that demanded for legal qualification.

Results of Examinations.

The following candidates have passed in the subjects indicated:

SURGERY.—L. Ashkenza, E. Clayton-Jones, J. Miller, J. D. Ritchie, E. A. Stroud.
MEDICINE.—A. F. Briglmen, E. Clayton-Jones, W. H. Collins, B. Elliott.
FORENSIC MEDICINE.—S. A. Carr, E. Clayton-Jones, S. Goldman, S. B. S. Smith.
MIDWIFERY.—E. Clayton-Jones, P. F. Fanaken, J. D. Ritchie.

The diploma of the Society has been granted to Messrs. E. A. Stroud and E. Clayton-Jones.

Medical Notes in Parliament.

[FROM OUR PARLIAMENTARY CORRESPONDENT.]

THE House of Commons this week completed its financial business for the Session, passing Estimates for many departments, of which only those for the Board of Trade, Board of Education, and Ministry of Labour were debated. The Trade Disputes and Trade Unions Bill and other measures passed through their final stages in both Houses and received the Royal Assent, after which Parliament adjourned till November 8th.

Medical Confidences.

On July 25th Dr. Vernon Davies asked whether the attention of the Minister of Health had been drawn to the decision of one of His Majesty's judges at the Birmingham assizes on July 18th, 1927, that there was no privilege for medical men to refuse information to the court obtained confidentially in the treatment of a patient suffering from a particular complaint, in spite of definite assurances in the past by the Ministry of Health that such information would be inviolate; and, as this decision by the learned judge must exercise a deleterious effect upon the detection and treatment of this complaint by preventing sufferers from it seeking competent medical advice and treatment, what steps he proposed to take to implement the assurances given to such sufferers in the past that the information obtained by submitting themselves to treatment would be kept inviolate; and whether, in view of the importance of removing any obstacle to complete confidence between a patient and his medical adviser in the early stages of this disease, he would inquire into the desirability of introducing legislation to give a doctor the right, at least in the case of this disease, to refuse to give evidence about confidential information obtained from a patient. Sir K. Wood said the Minister's attention had been drawn to this case, and he proposed to give careful consideration to the points raised by it.

Dr. Davies asked if the Minister would bear in mind, when considering this question, that it was a matter affecting panel patients, and that it might have deleterious effects on the treatment of disease and lead to a feeling of insecurity both by medical men and patients. Sir K. Wood replied that these were difficult questions, to which the Minister of Health proposed to give careful consideration.

Bills.

In the House of Lords, on July 25th, a Commons amendment to the Diseases of Animals Bill was accepted. On the same day the Midwives and Maternity Homes (Scotland) Bill and the Medical and Dentists Acts Amendment Bill passed through Committee, and on the following day were read the third time and passed. The latter bill is to be considered by the Commons during the autumn.

Nursing Homes (Registration) Bill.

On July 26th a Standing Committee of the House of Commons considered the Nursing Homes (Registration) Bill. Amendments were made in a subsection which provides that registration may be refused to a maternity home which was not in existence at the commencement of the Act and where any person attending any woman in the home in childbirth or nursing such woman after childbirth was not a certified midwife, pupil midwife, or qualified nurse. On the motion of Dr. V. Davies an amendment was made limiting the application of the words "woman after childbirth" to patients in the home. On the motion of Sir Richard Luce the Committee added "a duly qualified medical practitioner" to "certified midwife" and the rest of the list. Viscountess Astor moved that a nursing home (other than a maternity home) in which treatment by medical methods was not administered should not be refused registration on account only of the fact that it was not under the superintendence of a qualified residential nurse or that there was not a proper proportion of qualified nurses. She proposed this in order to exempt Christian Science Homes, which objected to being under medical men or medical nurses. Mr. Chamberlain resisted the amendment. He pointed out that it made no reference to Christian Science, would permit all forms of untrained and irregular practice to claim exemption from the bill, and would drive a coach and four through it. Dr. Davies said that Christian Scientists recognized that medical men were necessary for broken legs or infectious diseases. Christian Science homes were commercial propositions, charging the fees of the best nursing homes of the district, and whose Christian Science practitioners charged the fees of medical practitioners. If they thus competed with nursing homes they must be amenable to the law. Lady Astor renewed her appeal to the Minister to accept this amendment, but Miss Lawrence said that no people were more preyed upon than the sick poor, and the amendment would let through every quack in the world. Mrs. Philipson declared that the amendment was far too wide. It was negatived without a division.

Mr. Gerald Hurst moved an amendment to impose a time limit on the less stringent conditions which the bill provided for nursing homes in existence at the time of the bill's coming into operation. The limit proposed was that when the individual or corporation now carrying on the home ceased to do so, the stricter conditions of the bill should apply to the new management, including the statutory obligation to maintain a proportion of qualified nurses. Sir Kingsley Wood advised the Committee to insert the amendment. He suggested that the amendment should be altered so that it would apply when the home ceased to be solely under the control of the original individual. Thus altered the amendment was accepted. Clauses 1 and 2 were added to the bill. Clause 3, dealing with notice of refusal or cancellation of registration, was accepted with slight amendments moved by Dr. Davies. On Clause 4, which provides that the local authority may make by-laws, among other matters, for a record being kept of children born in the home, Dr. Davies moved to add also "any miscarriages occurring in the home." There was, he said, an undue proportion of miscarriages in certain nursing homes. The amendment was accepted. Sir Richard Luce moved to omit the proviso that along with the notification of death in a nursing home there should be given a statement of its cause. He said this would infringe the conditions of the Births and Deaths Registration Act, 1926. Miss Lawrence said that the bill was concerned with the deaths of women and children in maternity homes, and that there were certain types of homes which could not be watched too closely. Sir Kingsley Wood said he had consulted the Registrar-General, who in any case of suspicion would cause the information to be sent direct to the local supervising authority. This would keep the bill within the spirit of the Registration Act, and action would be taken through an official of the State instead of on the initiative of a private informant. Dr. Fremantle did not feel satisfied with Sir Kingsley Wood's explanation. He thought that a second line of inquiry was advisable. Sir Kingsley said he contemplated an arrangement whereby the Registrar-General would inform the local supervising authority of the number of deaths in a particular home, and if that number seemed abnormal the officer of the authority would make inquiries. Sir Richard Luce wished to secure that unauthorized persons did not give the cause of death. Under the bill the matron might have to give the cause of death. Dr. Davies suggested that if the local authority applied to the Registrar-General it should be permitted to inspect any certificate from any nursing home. Sir Kingsley Wood said he would see the Registrar-General again and explain that the Committee desired the local supervising authority to be able to learn the cause of death. Whatever action was taken would be by instruction and not in the Act of Parliament. He suggested that Sir Richard Luce's amendment should in the meantime be carried. The amendment was carried and the clause added to the bill.

On Clause 5 (inspection of nursing homes) Sir Richard Luce moved an amendment to indicate that the medical officer of health was normally the proper person to inspect nursing homes. His amendment would make the clause begin: "The medical officer of health of the local supervising authority or some other officer duly authorized by them may . . . at all reasonable times enter and inspect . . ." Sir Kingsley Wood approved the amendment. Mr. Hurst thought that the bill should be further amended so that other inspectors, such as sanitary or architectural inspectors, should act on the instruction of the medical officer. Mr. Hurst's amendment was carried. Clauses 5 and 6 were then added to the bill. Debate arose on Clause 8, which defines the local supervising authority. Sir Douglas Newton moved an amendment to ensure that the larger non-county boroughs should be supervising authorities for nursing homes; non-county boroughs were already the principal public health authorities in their areas, and had highly skilled medical officers. Dr. Fremantle suggested that the Committee should also discuss a subsequent amendment in his name, which provided that a borough or urban district council might delegate its powers to the county council. Under the Midwives Act every midwife was registered and supervised by a county council or county borough council, and these were the inspecting authorities under the Maternity Homes Act. Why should the Committee now multiply the inspecting authorities? The Select Committee on Nursing Homes had pointed out that interest or prejudice might affect inspection by the minor local authorities. The County Councils Association thought that to accept Sir Douglas Newton's amendment would be a retrograde step. If it was necessary to have a compromise on Sir Douglas Newton's amendment, he suggested that the Committee should provide that "where the council of any borough or urban district, of which the medical officer of health is precluded from engaging in private practice, shall resolve that the powers of a local supervising authority under this Act would be more efficiently administered by them without detriment to the administration of the Midwives Acts, the county council may by resolution delegate such powers to that council; and that council shall thereby become the local supervising authority under this Act."

Sir Kingsley Wood said he had endeavoured to get the parties to come to an arrangement. He thought the most reasonable compromise was to allow the local authorities to become supervising authorities only when they had full-time medical officers of health. It would be undesirable for a small local authority to be the supervising authority when its medical officer was in private practice. Sir Richard Luce objected to supervision being committed to rural districts which only shared in a medical officer of health. Sir Kingsley Wood said the question would be reconsidered later. The Committee then divided on a consequential amendment proposed by Sir Douglas Newton, which was carried by 14 to 6. This provides that the inspecting authority shall be "(*a*) as respects a county borough, the council of the borough; (*b*) as respects any urban or rural district, the medical officer of health of which is precluded either by the terms of his appointment as such medical officer or by the terms of any appointment which he may hold as medical officer of any other local or public authority from engaging in private practice, the council of the district; (*c*) as respects any other area, the council of the county." Dr. Fremantle's amendment was not put.

Clause 8 and subsequent clauses were added to the bill. On Clause 9 Sir Richard Luce moved that in any premises used or intended to be used solely for the reception of and the provision for a class of patients in whose case the requisite nursing can be suitably and adequately provided by nurses of a class whose names are contained in some part of the register of nurses required to be kept under the Nurses Registration Act, 1919, other than the general part of that register, references in the definition of "qualified nurse" contained in Subsection (1) of this section to the general part of the register shall be construed as including references to that other part of the register. Sir Kingsley Wood said this referred to children's nurses in homes exclusively for children and to male nurses in inebriate homes. The clause was accepted. Mr. Hurst moved a new clause to provide that in the County of London the supervising authorities should be the London County Council and the City Common Council, with power to delegate to borough authorities and with uniform by-laws throughout the area. This amendment was carried and the bill reported to the House. The concluding stages of the bill will be taken during the autumn sittings of Parliament.

Plague.

A number of questions were addressed to the Minister of Health about a grain ship which arrived recently in the Port of London and had been certified by the port sanitary authority to be suspected of containing vermin (rats) infected with bubonic plague. So far as he was aware, no other vessel so suspected had arrived. All vessels from South American ports bound for the Port of London were boarded at Gravesend. The port sanitary authority was taking all necessary precautions to prevent the spread of infection.

Medical Benefit.—The Minister of Health stated, on July 26th, that the proposal of the Royal Commission on National Health Insurance that the scope of medical benefit should be extended to include a consultant and specialist medical service was considered by the consultative council at its meeting, on July 21st, when it decided to give the matter further consideration before communicating its final views.

Persons Drunk while in Charge of a Vehicle.—The Home Secretary, on July 26th, said, in reply to a question, that the general practice was that a person arrested for being drunk while in charge of a vehicle who demanded to be examined by his own doctor was not allowed to be so examined in private, the police insisting on being present. He did not see how the interests of the prisoner could be prejudiced by the presence of a police officer, who might have to give evidence in court with regard to the examination. Interviews with solicitors were obviously on quite a different footing.

Mule-spinners' Cancer.—On July 25th Sir Frank Sanderson asked the Home Secretary if his attention had been called to the report of the departmental committee on the occurrence of epitheliomatous ulceration among mule-spinners (mule-spinners' scrotal cancer) which attributed the absence of evidence of a similar incidence among cotton mule-spinners in France, Germany, Russia, Poland, and America to the comparatively small number of mule-spinners employed abroad; and, in view of the fact that the more probable explanation for the absence of the disease in mule-spinners in foreign countries mentioned was the fact that in those countries braces were not worn, but a belt only, he would consider the desirability of making a regulation that all spinners should wear belts instead of braces, and of directing a further exhaustive inquiry into the fact as to whether or not there was at the present time a spray of oil which could reach the spinner, before introducing regulations giving effect to the expensive recommendations involving alterations in the machinery contained in the Commission's report. Sir W. Joynson-Hicks replied that the suggestion in the question as to the cause of this disease was not, so far as he was aware, supported by any evidence. The experiments of the Committee had proved that the oil thrown off from the spindles could reach the spinner, and no further inquiry on this point was necessary. No question arose, however, at present of requiring any expensive alterations to the existing mules. The Committee recommended that the employers' and operatives' associations should endeavour, by experiments, to devise some form of simple and inexpensive guard, which could be easily added to any existing mule, and he was looking to the industry to give effect to this recommendation.

Birth Rates.—Sir K. Wood, on July 19th, told Sir W. Davison that the birth rate per 1,000 of the population in Great Britain in 1925 was 18.6, and in 1926 18.1. In France, in 1926, it was provisionally 18.8; in Finland, in 1925, it was 22.3, and in Germany 21.3. In the Netherlands, in 1926, it was provisionally 23.8; in Spain, in 1925, it was provisionally 29.4, and in Hungary, in 1926, it was provisionally 26.7. In Italy, in 1925, it was provisionally 27.5. In the only parts of Russia in Europe for which figures were available they were: Soviet Republic of Russia, 1924, 43.6 (provisional); Ukraine, 1923, 35.4.

Notes in Brief.

Mr. Churchill does not propose to introduce legislation to increase the Civil List pension to provide State recognition of self-sacrificing and devoted services to medicine and science.

Dr. Shiels, M.P., has been appointed a member of the Commission which is to go to Ceylon to report on the revision of the constitution of that colony.

Commodore King, in reply to Mr. T. Kennedy on July 26th, said there had been twelve deaths this year in China among the British troops and two among the Indian troops not forming part of the permanent establishment there. Eight of the cases were due to illness and the rest to accidents or wounds.

Mr. Ormsby-Gore stated, on July 25th, that social hygiene in the Straits Settlements was receiving the constant and careful attention of the local Government. The reconstitution of a Colonial Office advisory committee on methods of dealing with prostitution in Hong-Kong, the Federated Malay States, Malta, and Cyprus was under consideration.

In the year ended June 30th the police instituted proceedings in 180 cases for the emission of smoke or noxious vapours by vehicles in Blackwall and Rotherhithe tunnels. Owing to legal difficulties no proceedings were taken for similar offences in the streets of London.

Medical News.

DR. A. NEAVE KINGSBURY, M.B., B.S., B.Sc.Lond., Colonial Medical Services, Institute of Medical Research, Federated Malay States, has been awarded the North Persian Forces Memorial Medal for the year 1926 for his paper, "Some investigations of malarial fevers," published in the *Transactions* of the Royal Society of Tropical Medicine and Hygiene (vol. xix, No. 8). This medal is awarded annually for the best paper on tropical medicine or hygiene published in any journal during the preceding twelve months by any medical officer of under twelve years' service of the Royal Navy, Royal Army Medical Corps, Royal Air Force, Indian Medical Service, or of the Colonial Medical Services.

THE thirty-sixth French Congress of Surgery will be held in Paris under the presidency of M. Paul Bégouin, professor of clinical surgery at Bordeaux, from October 3rd to the 8th, when the following subjects will be discussed: (1) Drainage in abdominal surgery, introduced by MM. Cadenat of Paris and Patel of Lyons; (2) Chronic pericolitis and epiploitis, introduced by MM. Lardennois of Paris and Silhol of Marseilles; (3) Indications and results of periarterial sympathectomy in surgery of the limbs, introduced by MM. Leriche of Strasbourg and Robineau of Paris.

THE Fellowship of Medicine announces that a special afternoon course in diseases of infants will be held at the Infants Hospital from August 8th to 21st, with special visits to the Model Pasteurizing Plant, Willesden, the Home for Blind Babies, Chorley Wood, and the V.D. Central Thavies Inn. From August 29th to September 10th an all-day course at the Queen Mary's Hospital, Stratford, will include demonstrations of surgical, medical, orthopaedic, and ophthalmic cases, operations, and lectures. In September there will be courses in medicine, surgery, and the specialties at the Westminster Hospital, diseases of children at the Queen's Hospital, psychological medicine at the Bethlem Royal Hospital, ophthalmology at the Royal Westminster Ophthalmic Hospital, and orthopaedics at the Royal National Orthopaedic Hospital. The Fellowship also arranges a general course of instruction at the associated hospitals. Copies of all syllabuses may be obtained from the Secretary of the Fellowship, 1, Wimpole Street, W.1.

THE annual dinner of past and present students of St. Mary's Hospital Medical School will be held at the Connaught Rooms, Great Queen Street, on Saturday, October 1st, at 7 p.m.

THE house of the Royal Society of Medicine will be closed during August for cleaning and repairs. The library will be open on weekdays (excluding Monday, August 1st) from 11 a.m. to 6 p.m., except on Saturdays, when it will close at 1 p.m.

THE late Professor E. H. Starling, we learn from the *Artists Rifles Journal*, joined that corps in 1900, when he was holding the Jodrell Chair of Physiology at University College. He took with him a number of his students.

DR. PEHAM, professor of obstetrics at Vienna, has been elected rector of the university.

THE Medical Society of the Mediterranean Coast has arranged a tour from December 30th, 1927, to January 7th, 1928, open to all medical practitioners and their families, starting from Toulon and visiting Hyères, St. Raphael-Valescure, Cannes, Le Cannet, Grasse, Vence, Nice, Villefranche, Beaulieu, Monaco, Monte Carlo, and Mentone. The cost, as at present arranged, will be 1,500 francs, including hotels and motor car excursions, apart from the cost of the railway journey, for which it is hoped facilities will be granted by the railways. Further information may be obtained from the French National Touring Office, 56, Haymarket, London, S.W.1.

A CONGRESS of Alimentary and Metabolic Diseases will be held at Vienna from October 4th to 7th, when papers will be read on the regulation of metabolism, peptic ulcer, formation of calculi and diabetes, by Drs. Hober, Porges, W. Koranyi, Tandler, Herxheimer, Schinz, Falta, and others. Further information can be obtained from the general secretary, Professor von der Velden, Bambergerstrasse 47, Berlin, W.30.

THE twelfth International Congress of Hydrology, Climatology, and Geology will be held at Lyons from October 8th to 11th, with Professor Gilbert of Paris as president of honour and Professor Pic of Lyons as president. The subjects to be discussed include acid-base equilibrium and treatment by mineral waters, atmospheric radio-activity, and the geological origin of radio-active mineral waters. The secretary is Professor Piéry of Lyons.

THE nineteenth French Congress of Medicine will open in Paris on October 11th, under the presidency of Professor Pierre Teissier, and will continue to the 15th; it will be followed immediately by the celebration of the centenary of Villemin. The programme includes discussions of the symptomatology of the medical septicaemias, the pathology of the oedemas, and the medical indications and therapeutic value of splenectomy. It is proposed to arrange an excursion to the battlefield of the Aisne. Detailed information may be obtained from the general secretary, Dr. M. Chiray, 14, Rue Pétrarque, Paris, XVI^e.

A POST-GRADUATE course in the pathology of the digestive system will be held in Barcelona from October 5th until Christmas. Further information may be obtained from Professor Gallart, at the Hospital de la Santa Cruz, Barcelona.

THERE are at present 5,000 medical students in Paris and 8,800 in the whole of France.

NINETY-EIGHT cases of encephalitis lethargica, with 37 deaths, occurred in Germany in 1926, as compared with 217 cases in 1925. Notification is compulsory only in Baden, Brunswick, Lubeck, Prussia (since May, 1926), Anhalt (since July, 1926), and Schaumburg-Lippe (since June, 1926).

Letters, Notes, and Answers.

All communications in regard to editorial business should be addressed to ***The EDITOR, British Medical Journal, British Medical Association House, Tavistock Square, W.C.1.***

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QUERIES AND ANSWERS.

TREATMENT OF ONYCHIA.

"W. S. M." asks for advice in the treatment of a typist, aged 30, who has onychia of the index finger of both hands, the right being the worst. She is otherwise healthy, but, the forefinger being the percussion finger, the lesion is serious for her.

GRAFTING FOR CORNEAL SCARS.

DR. C. E. SHELLY (Hertford) writes with reference to an inquiry published on July 16th (p. 121): There seems to be no justification for attempting so hazardous an operation as grafting for dealing with corneal opacities; the more so since it was shown a few years ago that corneal scars, whatever their size, age, and density, are speedily and painlessly resolved by a few short applications of a mild "violet ray" current, the glass applicator being in contact with the closed lids.

INCOME TAX.

Motor Car; Rent; Average.

"J. H. T." replaced his car in January, 1926. On what figure should his depreciation allowance be based? He has bought his premises; should he not be allowed to deduct a proportion of his former rent? Can he not claim the three years' average, seeing that he took over the practice at April, 1924, and that his earnings have been increasing?

*** (1) The depreciation allowance is based on the written down value of the car as at the end of the last account prior to the year of assessment. That principle has been approved by the courts. If the obsolescence allowance is claimed in respect of the car replaced there should be no effective difference in this case. (2) As from the date of purchase of the premises the rental value to be taken as the basis of the deduction for Schedule D is the amount on which tax has been paid under Schedule A; it should be borne in mind that an appropriate portion of the expenditure on repairs and decorations should also be claimed. (3) In the circumstances stated "J. H. T." can elect to take the three years' average for 1927–28 *and* 1928–29 (both years, not one only), if the earnings for the year 1923–24 were greater than either of the years 1924–25 or 1925–26, but not otherwise. The election should be notified to the inspector of taxes by October 5th, as made under Section 29 of the Finance Act, 1926–27.

Motor Car Expenses.

"D. I. A." sold his former practice in March, 1925, and bought another three months later. He has claimed obsolescence in respect of a car sold in 1926, and the local inspector claims to deduct the sum of £102 as being the wear and tear attributable to the period before "D. I. A." took over his present practice.

*** We advise "D. I. A." to accept the inspector's objection as regards the £11 attributable to the three months during which he was not in practice, but as regards the remaining £91 the contention is clearly inequitable. In substance the inspector is treating the claim as if the car had been sold by the old practice to the new one, but we presume that he would not regard the facts as justifying the present proprietor of the old practice in claiming a deduction of £91. If so it is clear that unless that allowance is made to "D. I. A." the plain intention of the Statute is defeated. There is some technical ground in the suggestion that the old loss by wear and tear did not affect the earnings of the practice for which "D. I. A." is now assessed, but, on the other hand, no allowance has been "made" for that wear and tear, and our correspondent did incur the whole of the expense in 1926. If the inspector continues to refuse the claim, perhaps a ruling could be obtained from the Secretary, Inland Revenue, Somerset House; in that event we should be glad to learn the result, as it is a matter of some general interest to the profession.

Motor Car Transactions.

"M. H." sold a car (which he had purchased second-hand for £335) for £30 and bought a new car for £275. The inspector will allow £275–£30=£245, but not £335–£30=£305. The second car has since been replaced.

*** We advise "M. H." to accept the £245 deduction. Where a second-hand car is replaced by a new one the question of improvement and consequent adjustment for capital outlay raises peculiar difficulties.

LETTERS, NOTES, ETC.

THE EFFECT OF BATHING ON THE EARS.

MR. F. PEARCE STURM, M.Ch. (Leigh, Lancs) writes: I agree with every word of Mr. C. Hamblen Thomas's timely communication on "The effect of bathing on the ears" (BRITISH MEDICAL JOURNAL, July 9th, p. 78), with the single exception of the word "meati." Used as the plural of "meatus," which it is not, "meati" is as obnoxious to the mental ear as contaminated sea water to the physical organ.

INTRAUTERINE AMPUTATIONS.

DR. JOHN TROTTER (Grimsby) writes: I was called at 4.30 a.m. to a woman who was expecting her second child. She was in labour. The presentation was a breech: left sacro-anterior. The os was dilated to two fingers. I was called again at 9.30 a.m. and found the cervix fully dilated, the breech well down on the perineum, and the membranes unruptured. After rupturing the membranes, which were very tough, a stillborn male child, weighing 5 lb., was easily delivered. Both legs were absent below the knee and the right arm ended at the elbow. The stump of the left leg presented an appearance like that of an old amputation through the knee-joint, the patella being removed. The right presented a similar appearance, but the medial condyle of the femur was absent. The child otherwise appeared normal. The mother, aged 35 years, gave birth six years ago to her first child, a girl, who presents no structural abnormalities. There have been no miscarriages. The parents are healthy, well made, and do not know of any birth deformities in their family histories.

VACANCIES.

NOTIFICATIONS of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 31, 32, 33, 36 and 37 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 34 and 35.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 88.